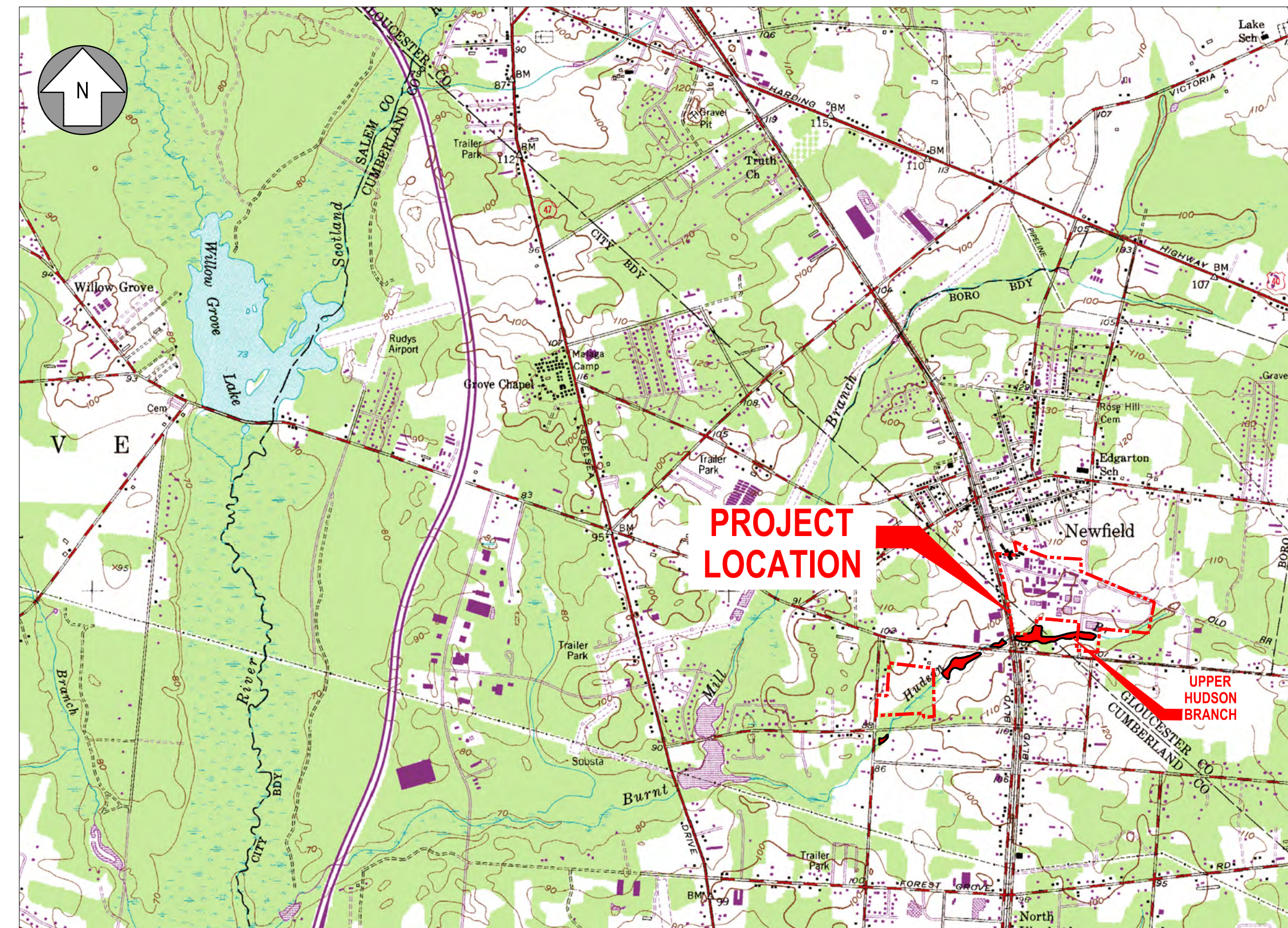


**BOROUGH OF NEWFIELD, CITY OF VINELAND
GLOUCESTER AND CUMBERLAND COUNTIES
NEW JERSEY**



LOCATION MAP
SCALE: 1"=2000'

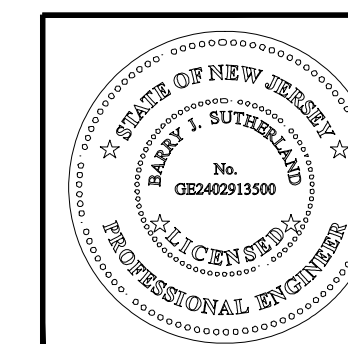


Results you can rely on

41 SPRING STREET, SUITE 102
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DRAWING INDEX

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BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Bary J. Lutz

3/1/17
Date

NO.	REVISION	DATE
0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17
		G-1

A. GENERAL NOTES

1. BLASTING IS NOT PERMITTED ON THIS PROJECT.
2. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
3. THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THE WORK.
4. A PRE-CONSTRUCTION CONFERENCE IS TO BE HELD PRIOR TO BEGINNING CONSTRUCTION. THIS CONFERENCE SHALL TAKE PLACE AT A LOCATION SELECTED BY THE ENGINEER.
5. CONTRACTOR SHALL COORDINATE WITH CONSTRUCTION SCHEDULE, FOLLOWED BY A LETTER OF CONFIRMATION.
6. CONTRACTOR SHALL NOTIFY THE "NEW JERSEY ONE CALL SYSTEM", 811 OR 1-800-892-0123 AT LEAST 72 HOURS (THREE BUSINESS DAYS), BUT NOT MORE THAN 14 CALENDAR DAYS IN ADVANCE OF CONSTRUCTION ACTIVITIES.
7. CONTRACTOR SHALL ASSURE HIMSELF OR HERSELF THAT ALL CONSTRUCTION PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF WORK.
8. CONTRACTOR SHALL GIVE A MINIMUM OF 72 HOURS NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES AFFECTED BY ITS OPERATIONS PRIOR TO COMMENCEMENT OF WORK.
9. CONTRACTOR SHALL TAKE ALL DUE PRECAUTIONS TO PROTECT EXISTING FACILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF THESE CONSTRUCTION OPERATIONS ARE TO BE REPAIRED IMMEDIATELY BY THE CONTRACTOR TO AT LEAST THE PRE-EXISTING CONDITION. ADEQUACY OF REPAIR TO DAMAGED FACILITIES SHALL BE AT THE DISCRETION OF THE ENGINEER.
10. LOCATION OF EXISTING UTILITIES SHOWN ON PLANS WAS COMPILED FROM RECORD INFORMATION. NO WARRANTY IS IMPLIED AS TO THE ACTUAL LOCATION OF EXISTING UTILITIES. CONTRACTOR TO FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
11. WHEN UNLOCATED OR INCORRECTLY LOCATED UNDERGROUND PIPING OR A BREAK IN A LINE OR OTHER UTILITIES AND SERVICES ARE ENCOUNTERED DURING SITE WORK OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE APPLICABLE UTILITY COMPANY IMMEDIATELY TO OBTAIN PROCEDURES. THE CONTRACTOR SHALL COOPERATE WITH THE APPLICABLE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.
12. THE CONTRACTOR SHALL MAINTAIN ACCESS TO PUBLIC AND PRIVATE FACILITIES DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES TO BE COORDINATED WITH THE OWNER.
13. THE CONTRACTOR SHALL COORDINATE INTERRUPTIONS OF ALL UTILITIES AND SERVICES WITH APPLICABLE UTILITY COMPANY OR COMPANIES AND OWNER. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY COMPANY OR AGENCY INVOLVED.
14. THE CONTRACTOR SHALL LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, AND CONTROL POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED LAND SURVEYOR IN THE STATE OF NEW JERSEY.
15. EXISTING PAVING, BUILDING, AND OTHER ITEMS SHOWN ON PLANS NOT SPECIFICALLY RELATED TO THE WORK OF THE CONTRACTOR IS FOR INFORMATION ONLY.
16. EXISTING SURFACE AND SUBSURFACE STRUCTURES (GAS MAINS, WATER MAINS, STORM SEWERS, TELEPHONE CABLES, ETC.) ARE SHOWN ON THE PLANS IN APPROXIMATE LOCATIONS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID DAMAGING THESE EXISTING STRUCTURES WHETHER OR NOT THEY ARE SHOWN ON THE PLANS. THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR FAILURE TO SHOW ANY OR ALL OF THESE STRUCTURES ON THE PLANS OR TO SHOW THEM IN THEIR EXACT LOCATION. IF ANY STRUCTURE IS DAMAGED BY THE CONTRACTOR, IT SHALL BE ITS RESPONSIBILITY TO REPAIR THE DAMAGE AND RESTORE THE STRUCTURE TO ITS ORIGINAL CONDITION.
17. THE ORIGINAL PLANS FOR THIS PROJECT WERE PREPARED ON FULL SIZE STANDARD SHEETS (24-INCHES X 36-INCHES). THE SPECIFIC SCALE FOR THE INDIVIDUAL UNITS WOULD BE TRUE ONLY ON THE ORIGINAL SHEET SIZE. REPRODUCED COPIES, REDUCTIONS OR OTHER METHODS OF PRINTING MAY CHANGE OR ALTER THE SCALE. THE ENGINEER IS NOT RESPONSIBLE FOR SCALE DIMENSIONS UTILIZED BY OTHERS ON THESE PLANS.
18. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS, ELEVATIONS AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES, IF REQUIRED. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED. THE ENGINEER SHALL BE NOTIFIED WHEN PROPOSED FACILITY GRADES CONFLICT WITH EXISTING UTILITY GRADES.
19. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS AS THEY RELATE TO NEW CONSTRUCTION. CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.
20. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAY, SIDEWALKS OR FIRE HYDRANTS WITHOUT APPROPRIATE PERMITS.
21. LIST OF PERMIT EQUIVALENCES REQUIRED IN ACCORDANCE WITH EPA REQUIREMENTS:

1. NJDEP LURP FLOOD HAZARD AREA INDIVIDUAL PERMIT

2. NJDEP WETLANDS GENERAL PERMIT #4

3. NJDEP TREATMENT WORKS APPROVAL(TWA) – GENERAL INDUSTRIAL

4. NJDEP DIVISION OF WATER QUALITY BGR PERMIT – GENERAL GROUNDWATER NON-PETROLEUM REMEDIATION CLEANUP

5. SOIL EROSION AND SEDIMENT CONTROL PLAN CERTIFICATION – GLOUCESTER SOIL CONSERVATION DISTRICT.

6. NJDEP CONSTRUCTION GENERAL PERMIT RFA – STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES.
22. AREAS OUTSIDE THE PROPOSED LIMITS OF DISTURBANCE SHOWN ON THE APPROVED SOIL EROSION AND SEDIMENT CONTROLS PLANS THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE ENGINEER.

B. GENERAL PIPING NOTES

1. THE CONTRACTOR SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION FOR CURVATURE OF LINES AND/OR DEFLECTION OF PIPE JOINTS. INSTALL JOINTS AS REQUIRED.
2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND COORDINATE PIPE LAYOUT WITH EQUIPMENT SUPPLIERS.

3. THE LOCATION OF UTILITIES AND STRUCTURES, BOTH SURFACE AND SUBSURFACE, ARE SHOWN ON THE PLANS FROM DATA AVAILABLE AT THE TIME OF THE SURVEY AND ARE NOT NECESSARILY COMPLETE OR CORRECT. THE EXACT LOCATION AND PROTECTION OF UTILITIES AND STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. DURING CONSTRUCTION THE CONTRACTOR SHALL USE DILIGENCE TO PROTECT ALL EXISTING UTILITIES AND STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RESTORATION OF SAME IN ACCORDANCE WITH THE DIRECTION OF THE OWNER AND FOR ANY RESULTING CONTINGENT DAMAGE.
4. MAINTAIN MINIMUM CLEARANCE OF THREE (3) FEET FROM EDGE OF STRUCTURES TO THE CLOSEST EDGE OF PIPELINE ADJACENT AND PARALLEL TO EDGE OF STRUCTURE, UNLESS OTHERWISE NOTED ON THE PLANS.
5. WATER JETTING THE BACKFILL WILL NOT BE PERMITTED.

C. GENERAL ENVIRONMENTAL NOTES

1. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS REGARDING EXCESS AND WASTE MATERIAL, INCLUDING METHODS OF HANDLING AND DISPOSAL.
2. CONTRACTOR SHALL LOCATE MATERIAL STORAGE AREAS OUTSIDE OF N.J. FLOOD HAZARD AREA AS INDICATED ON PLANS AND AWAY FROM STORM WATER CONVEYANCE SYSTEMS. PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
3. INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE ENGINEER.
4. THE CONTRACTOR SHALL ADVISE OWNER AND ENGINEER IMMEDIATELY, VERBALLY AND IN WRITING, OF ANY FUEL OR TOXIC MATERIALS SPILLS WITHIN THE PROJECT/CONSTRUCTION AREA AND THE ACTIONS TO BE TAKEN TO REMEDY THE PROBLEM.
5. THE CONTRACTOR SHALL DISPOSE OF FUELS, HAZARDOUS MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER.
6. NO OPEN BURNING IS ALLOWED ON THIS PROJECT. NO CONSTRUCTION WASTE SHALL BE BURNED OR BURIED ON SITE.

D. STORMWATER NOTES

1. WATER DIVERSION METHODOLOGY SHOWN ON APPROVED PERMIT PLANS IS BASED UPON ENGINEER'S BEST JUDGEMENT, AND DEPICT MINIMUM STANDARD OF PERFORMANCE. CONTRACTOR SHALL SUBMIT A WATER DIVERSION PLAN TO ENGINEER FOR APPROVAL, INDICATING DETAILS, PRIOR TO BEGINNING CONSTRUCTION.
2. THROUGHOUT THE CONSTRUCTION, AND AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL ASSURE THAT DRAINAGE OF STORM WATER RUNOFF IS NOT BLOCKED, EXCEPT AT APPROVED LOCATIONS AS INDICATED ON PLANS. BYPASS PUMPING OF STORMWATER WILL REQUIRE FILTERING VIA SEDIMENT BAG OR OTHER APPROVED METHODS IN ACCORDANCE WITH APPROVED PERMIT DOCUMENTS.
3. DURING CONSTRUCTION, OVERLAND FLOW FROM DISTURBED AREAS SHOULD BE FILTERED BY THE PERIMETER SOIL EROSION AND SEDIMENT CONTROL (SESC) PLAN OPTIONS, PROVIDED IN THE SESC PERMIT PLAN. PUMPED WATER FROM UPGRAIDENT AREAS SHOULD BE DISCHARGED THROUGH FILTER BAGS, CONSISTENT WITH THE PERMIT. PUMPED WATERS FROM AREAS REQUIRING REMEDIATION MUST BE TREATED, AND THEN DISCHARGED THROUGH FILTER BAGS, CONSISTENT WITH THE PERMIT. THESE TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE TO REMAIN IN PLACE UNTIL AN EROSION MAT IS INSTALLED, WHICH CONSTITUTES AS A STABILIZED AREA. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS TO BE INSPECTED PERIODICALLY FOR DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES AND FOLLOWING EVERY RAINFALL EVENT. DAMAGED OR OBSTRUCTED CONTROLS TO BE REPAIRED/REPLACED AS NECESSARY TO MAINTAIN THEIR PROPER OPERATION.

E. SITE GRADING NOTES

1. THE CONTRACTOR SHALL CONTROL DUST CAUSED BY THE WORK AND COMPLY WITH POLLUTION CONTROL REGULATIONS OF GOVERNING AUTHORITIES.
2. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPROVED PERMIT PLANS.
3. EXCESS EXCAVATED MATERIAL SHALL BE STOCKPILED IN DESIGNATED AREAS ONLY, AS SHOWN ON APPROVED PERMIT PLANS OR AS DIRECTED BY THE ENGINEER. ALL EXCESS EXCAVATED MATERIAL IS TO BE TRANSPORTED AND DISPOSED OF IN A MANNER CONSISTENT WITH APPROVED PERMIT DOCUMENTS.
4. IMPORTED MATERIAL SHALL BE STOCKPILED IN DESIGNATED AREAS SHOWN ON PLANS ONLY, OR AS DIRECTED BY THE ENGINEER. STOCKPILES ARE NOT TO TRAP OR POND WATER. IMPORTED MATERIAL TO BE STOCKPILED SEPARATELY. SILT FENCE OR HAYBALES TO BE INSTALLED AROUND STOCKPILE PERIMETERS AS PER THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PERMIT PLAN, OR APPROVED MODIFICATIONS THEREOF.

F. EROSION/SEDIMENTATION & TREE PROTECTION NOTES

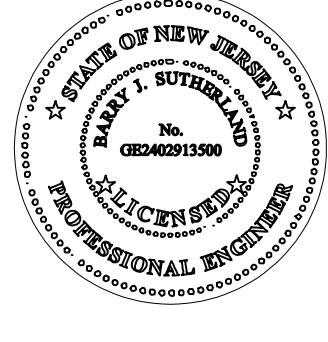
1. THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS PRIOR TO SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT. ALL WORK SHALL BE CONSISTENT WITH APPROVED SOIL EROSION AND SEDIMENT CONTROL PERMIT PLANS.
2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN. DEVIATIONS FROM THE PLAN MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER.
3. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ANY ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO THE OWNER, ENGINEER, OR OWNER'S REPRESENTATIVE.
4. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT ANY OFFSITE AREAS, WHETHER SUCH SEDIMENTATION IS CAUSE BY WATER, WIND, OR DIRECT DEPOSIT.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM DRAINAGE SYSTEM.

G. CONSTRUCTION SCHEDULE/PLAN

1. THE CONTRACTOR WILL CONFINE ALL OPERATIONS TO DAYLIGHT HOURS WITH NO WORK PERFORMED ON SATURDAYS, SUNDAYS, OR STATE OBSERVED HOLIDAYS UNLESS OTHERWISE AUTHORIZED IN ADVANCE BY THE ENGINEER.
2. THE CONTRACTOR SHALL PARTICIPATE IN WEEKLY SCHEDULING MEETINGS WITH THE ENGINEER TO COORDINATE WORK. THE CONTRACTOR SHALL SUBMIT A PROPOSED BI-WEEKLY WORK SCHEDULE TO THE ENGINEER FOR APPROVAL BEFORE BEGINNING THE SCHEDULED ACTIVITIES.

H. SITE-SPECIFIC NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. ALL CONSTRUCTION ACTIVITIES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW JERSEY, THE APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS, AND ANY APPLICABLE REQUIREMENTS. THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
2. FOR EXISTING CONDITIONS INFORMATION, SEE NOTES ON SHEETS TITLED "EXISTING CONDITIONS PLAN".
3. THE CONTRACTOR WILL PROVIDE ALL CONSTRUCTION SURVEYING AND STAKING SERVICES FOR THE PROJECT. THE COST OF THESE SERVICES WILL BE REFLECTED IN THE UNIT PRICE AMOUNT BID IN THE PROPOSAL. NO SEPARATE PAYMENT WILL BE MADE.
4. THE CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION. THE CONTRACTOR SHALL FURNISH "AS BUILT" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS BUILT" DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE OF THE WORK.
5. ALL WORK SHALL BE CONDUCTED SUCH THAT IT DOES NOT INTERFERE WITH THE ON-GOING OPERATIONS OF ADJACENT BUSINESSES.
6. CONTRACTOR SHOULD BE MINDFUL OF ADJACENT RESIDENCES. ALL WORK SHALL BE CONDUCTED SUCH THAT IT DOES NOT DISRUPT ADJACENT RESIDENTIAL PROPERTIES.
7. THE CONTRACTOR'S BID COST SHALL INCLUDE ALL STORMWATER BYPASS PUMPING INCLUDING ALL LABOR, MATERIALS, EQUIPMENT, MAINTENANCE, ETC. TO ENSURE THERE IS NO INTERRUPTION OF STORMWATER FLOWS.
8. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL SURFACE OR SEEPAGE WATER FROM SEWERS, DRAINS, DITCHES, GROUNDWATER AND OTHER SOURCES WHICH MAY ACCUMULATE DURING THE EXCAVATION AND CONSTRUCTION WORK BY DOING THE NECESSARY PUMPING, BAILING OR DRAINING. THE CONTRACTOR SHALL HAVE AVAILABLE AT ALL TIMES SUFFICIENT EQUIPMENT IN PROPER WORKING ORDER AND PERMITS FOR DOING THE WORK HEREIN REQUIRED. ALL WATER REMOVED FROM EXCAVATIONS SHALL BE DISPOSED OF IN AN APPROVED MANNER SO AS TO NOT CREATE UNSANITARY CONDITIONS NOR TO INTERFERE UNDULY WITH THE USE OF STREETS, PRIVATE DRIVEWAYS, OR ENTRANCES. NO SEPARATE PAY.
9. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND ENGINEER AND HIS EMPLOYEES, PARTNERS, OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.
10. CONTRACTOR TO CONTACT THE ENGINEER SUFFICIENTLY IN ADVANCE FOR ANY FIELD CHANGES. ANY REVISIONS OR CHANGES TO THE APPROVED CONSTRUCTION PLANS WILL REQUIRE ADDITIONAL APPROVAL BY THE ENGINEER AND REGULATORS AS APPROPRIATE. FIELD CHANGES MUST BE APPROVED IN WRITING PRIOR TO BEGINNING WORK.
11. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
12. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT HAVE TO WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN. NO SEPARATE PAY.
13. THE CONTRACTOR WILL OWN THE PROJECT UNTIL ACCEPTANCE BY THE OWNER. HE SHALL ARRANGE AND PURCHASE INSURANCE FOR FLOOD OR ANY OTHER DAMAGES TO HIS WORK DURING CONSTRUCTION.
14. POWER POLES TO BE BRACED AT CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL NOTIFY/COORDINATE WITH THE APPROPRIATE UTILITY COMPANY.
15. MONITORING WELLS ARE PRESENT AT THE FACILITY. ALL ARE NOT LOCATED ON THE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL MONITORING WELLS IN THE WORK AREA AND TO AVOID DAMAGING THEM. IF ANY MONITORING WELL IS DAMAGED BY THE CONTRACTOR, IT SHALL BE HIS RESPONSIBILITY TO REPAIR, OR ABANDON AND REPLACE THE DAMAGED WELL AT THE DISCRETION OF THE ENGINEER. ALL REPAIR WORK CONDUCTED BY A LICENSED WELL INSTALLER IN ACCORDANCE WITH NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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Barry J. Sutherland

3/1/17 Date		
NO.	REVISION	DATE
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1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

- EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF TRC ENGINEERS, INC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CALL 1-800-272-1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
- THIS PLAN IS NOT FOR CONSTRUCTION PURPOSES.
- THIS PLAN IS ISSUED FOR REGULATORY REVIEW PURPOSES ONLY.
- THIS PLAN IS NOT VALID UNLESS A RAISED SEAL IS AFFIXED HERETO.

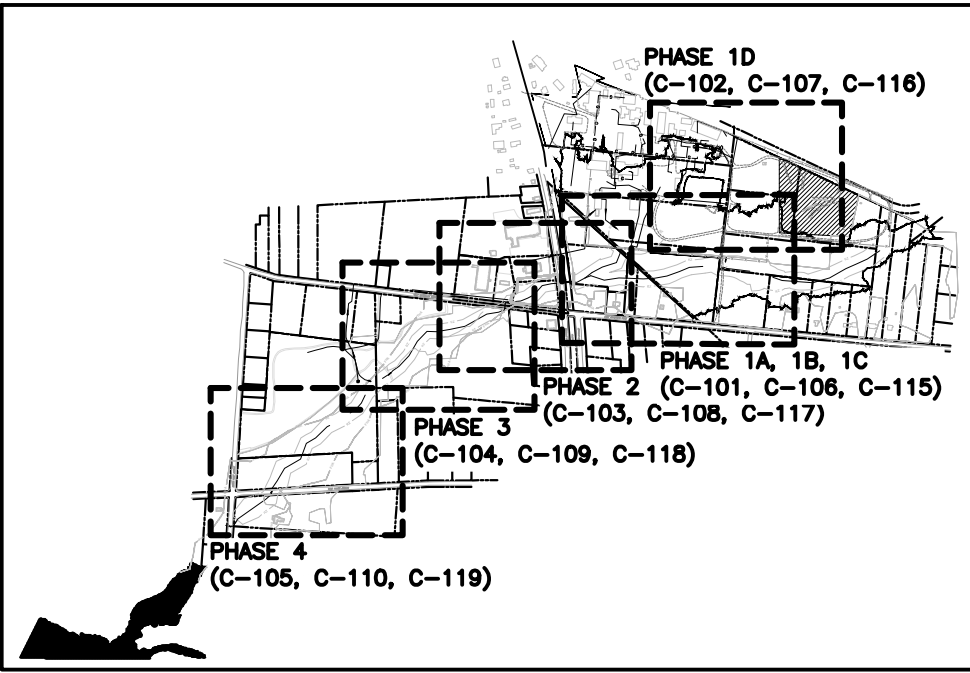
**TRC Engineers, Inc.**

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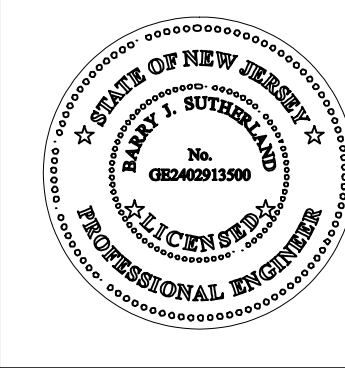
**SHIELDALLOY
METALLURGICAL CORPORATION**

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE: GENERAL NOTES	
Project No.: 112434	Scale: NOT TO SCALE
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	G-2



KEYMAP
SCALE: 1" = 1500



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

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NAD 83 NORTH



NOTES/REFERENCES:

1. TOPOGRAPHICAL INFORMATION WITHIN UPPER HUDSON BRANCH AS SURVEYED BY TRC ENGINEERS IN APRIL OF 2015. SUPPLEMENTED WITH ADDITIONAL NAD-83 DEM CONTOUR DATA OUTSIDE OF STREAM BED AND BANK AREA.
HORIZONTAL DATUM: NAD 83.
VERTICAL DATUM: NAVD 88.
2. BOROUGH OF NEWFIELD TAX MAP SHEET 2, DATED OCTOBER 1924, REVISED TO NOVEMBER 1999.
BOROUGH OF NEWFIELD TAX MAP SHEET 10, DATED OCTOBER 1924, REVISED TO DECEMBER 2002.
CITY OF VINELAND TAX MAP SHEET 5, DATED SEPTEMBER 1999, REVISED TO JANUARY 13, 2011.
CITY OF VINELAND TAX MAP SHEET 7, DATED SEPTEMBER 1999, REVISED TO APRIL 30, 2008.
3. DEED BOOK 2194, PAGE 160, DATED 9/4/1996, LOT 29, BLOCK 501
DEED PREPARED BY RICHARD S. KASER, ESQ., DATED 12/4/2006, LOT 31, BLOCK 501
DEED BOOK 1806, PAGE 232, FILED 9/7/1989, LOT 32, BLOCK 501
DEED BOOK 2533, PAGE 005, DATED 8/18/2001, LOT 33, BLOCK 501
DEED BOOK 2508, PAGE 192, DATED 4/27/2001, LOT 34, BLOCK 501
3. NAD83 ORTHO IMAGERY USED TO SUPPLEMENT SURVEY DATA FOR NEARBY PHYSICAL FEATURES.
4. FEMA ZONE A FLOODPLAIN FOR UPPER HUDSON WITHIN NEWFIELD BOROUGH TAKEN FROM "PANEL 0292E, FIRM FLOOD INSURANCE RATE MAP FOR GLOUCESTER COUNTY, NEW JERSEY PANEL 292 OF 320, MAP NUMBER 34015C0292E, EFFECTIVE JANUARY 20, 2010".
5. FEMA ZONE A FLOODPLAIN FOR LOWER HUDSON WITHIN THE CITY OF VINELAND TAKEN FROM "PANEL 0066E, FIRM FLOOD INSURANCE RATE MAP FOR CUMBERLAND COUNTY, NEW JERSEY PANEL 66 OF 466, MAP NUMBER 34011C0066E, PRELIMINARY DATE APRIL 30, 2014." THIS MAP IS CURRENTLY IN A PUBLIC COMMENT PERIOD.

FLOOD HAZARD AREA NOTES:

1. ALL OR A PORTION OF THIS SITE LIES IN A FLOOD HAZARD AREA. CERTAIN ACTIVITIES IN FLOOD HAZARD AREAS ARE REGULATED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SOME ACTIVITIES MAY BE PROHIBITED ON THIS SITE OR MAY FIRST REQUIRE A PERMIT. CONTACT THE DIVISION OF LAND USE REGULATION AT (609) 292-0060 FOR MORE INFORMATION PRIOR TO ANY CONSTRUCTION ONSITE.
2. N.J.A.C. 7:13-3.6, METHOD 6, THE CALCULATION METHOD, WAS USED TO DELINEATE THE FLOOD HAZARD AREA AS SHOWN ON THIS PLAN. SEE "ENGINEER'S REPORT, FLOOD HAZARD AREA DELINEATION OF UPPER HUDSON BRANCH, PREPARED FOR SHIELDALLOY METALLURGICAL CORPORATION", PREPARED BY TRC ENGINEERS, INC., 322 WALL STREET, PRINCETON, NJ 08540, BY RADIM KUCERA, P.E., DATED XXXXXXX XX, 2016", FOR FULL EXPLANATION AND OUTPUT ANALYSIS OF HEC-RAS MODEL.
3. ALL ELEVATIONS SHOWN ON THIS PLAN ARE IN NAVD88.

LEGEND

---	SITE BOUNDARY LINE	---	EXISTING DIRT ROAD
---	TAX LOT LINE PER TAX MAP	---	EXISTING FENCE LINE
---	FIELD SURVEYED STREAM CENTERLINE	---	PREVIOUSLY CAPPED AREA
---	EDGE OF WATER	---	6" DEPTH EXCAVATION AND BACKFILL AREA (STREAM BANK AREA)
---	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)	---	12" DEPTH EXCAVATION AND BACKFILL AREA (STREAM CHANNEL AREA)
---	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT	---	24" DEPTH EXCAVATION AND BACKFILL AREA (STREAM CHANNEL AREA)
---	EXISTING TOP OF BANK	---	ASPHALT CAP
---	WETLANDS BUFFER	---	RESTRICTED AREA
---	WETLANDS LIMIT	---	

0 200 FT.
APPROXIMATE SCALE

FILE: W:\RAWV PROJECT FOLDERS\2501-3000\2710\DOCUMENTS (WIP)\REPORTS (WIP)\2015 012\DWG\FIGURES\122434_SRP.DWG, DATE: 02/25/2017 06:43:48PM

TRC Engineers, Inc.
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NEW PROVIDENCE, NEW JERSEY 07974
PHONE NO.: (908) 988-1700
FAX NO.: (973) 564-6442
Certificate of Authorization #24GA28047100

**SHIELDALLOY
METALLURGICAL CORPORATION**
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

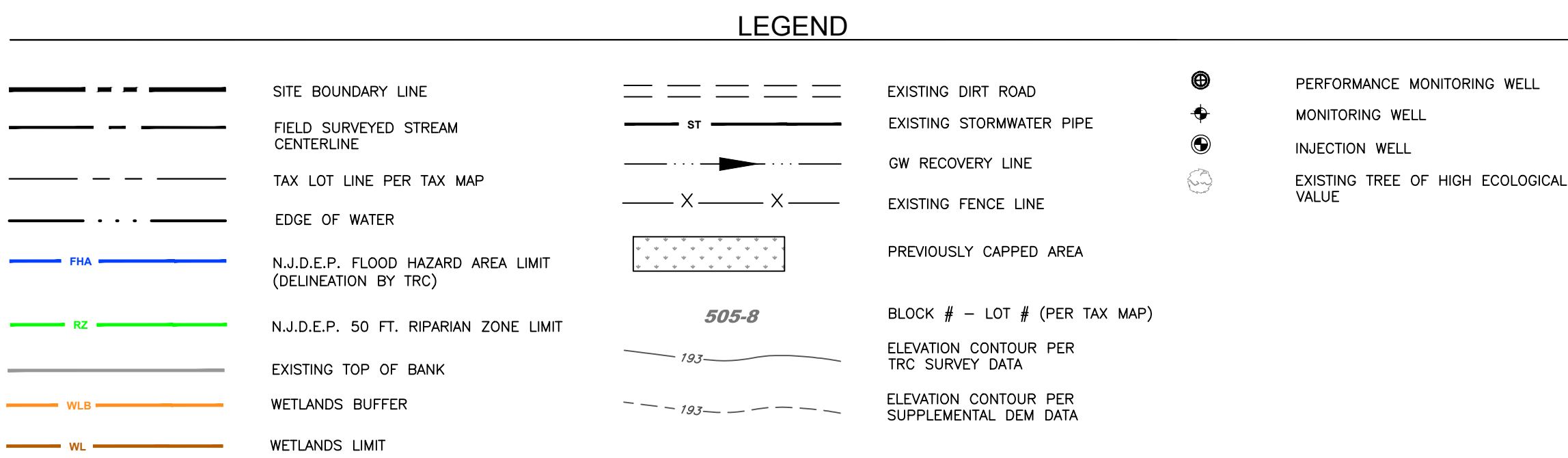
TITLE: OVERALL SITE PLAN	
Project No.: 112434	Scale: 1" = 200'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	
C-100	



Barry J. Lutz

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NOTE:
1. FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.

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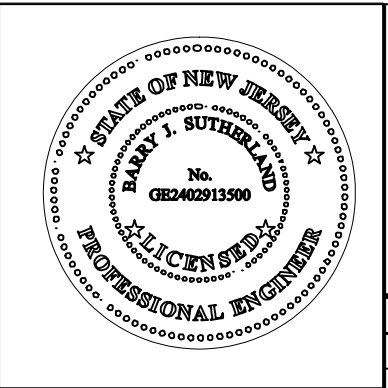
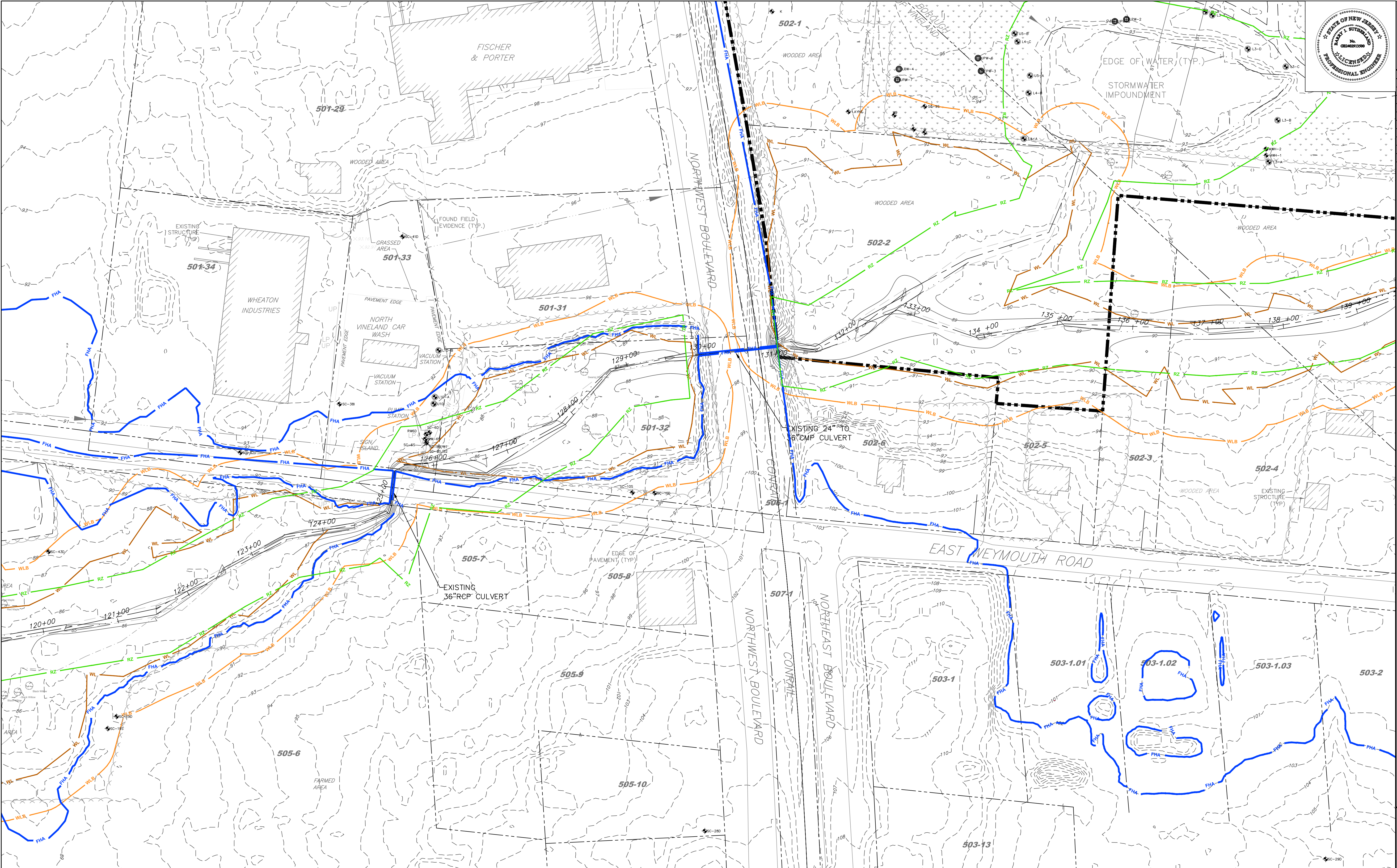
TITLE:

EXISTING CONDITIONS PLAN
PHASE 1A, 1B, 1C

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016

Checked By: BJS/PJH	C-101



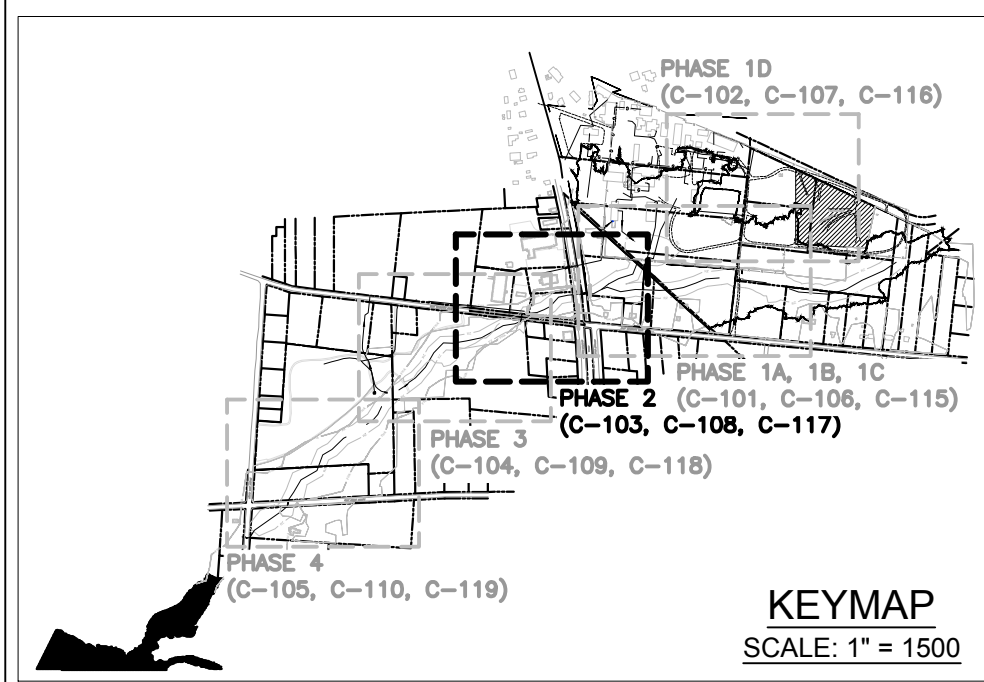


BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland
Date

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1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

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LEGEND			
	SITE BOUNDARY LINE		EXISTING DIRT ROAD
	FIELD SURVEYED STREAM CENTERLINE		EXISTING STORMWATER PIPE
	TAX LOT LINE PER TAX MAP		GW RECOVERY LINE
	EDGE OF WATER		EXISTING FENCE LINE
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINATION BY TRC)		PREVIOUSLY CAPPED AREA
	WETLANDS BUFFER		BLOCK # - LOT # (PER TAX MAP)
	WETLANDS LIMIT		ELEVATION CONTOUR PER TRC SURVEY DATA
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
	EXISTING TOP OF BANK		

NOTE:
1. FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.

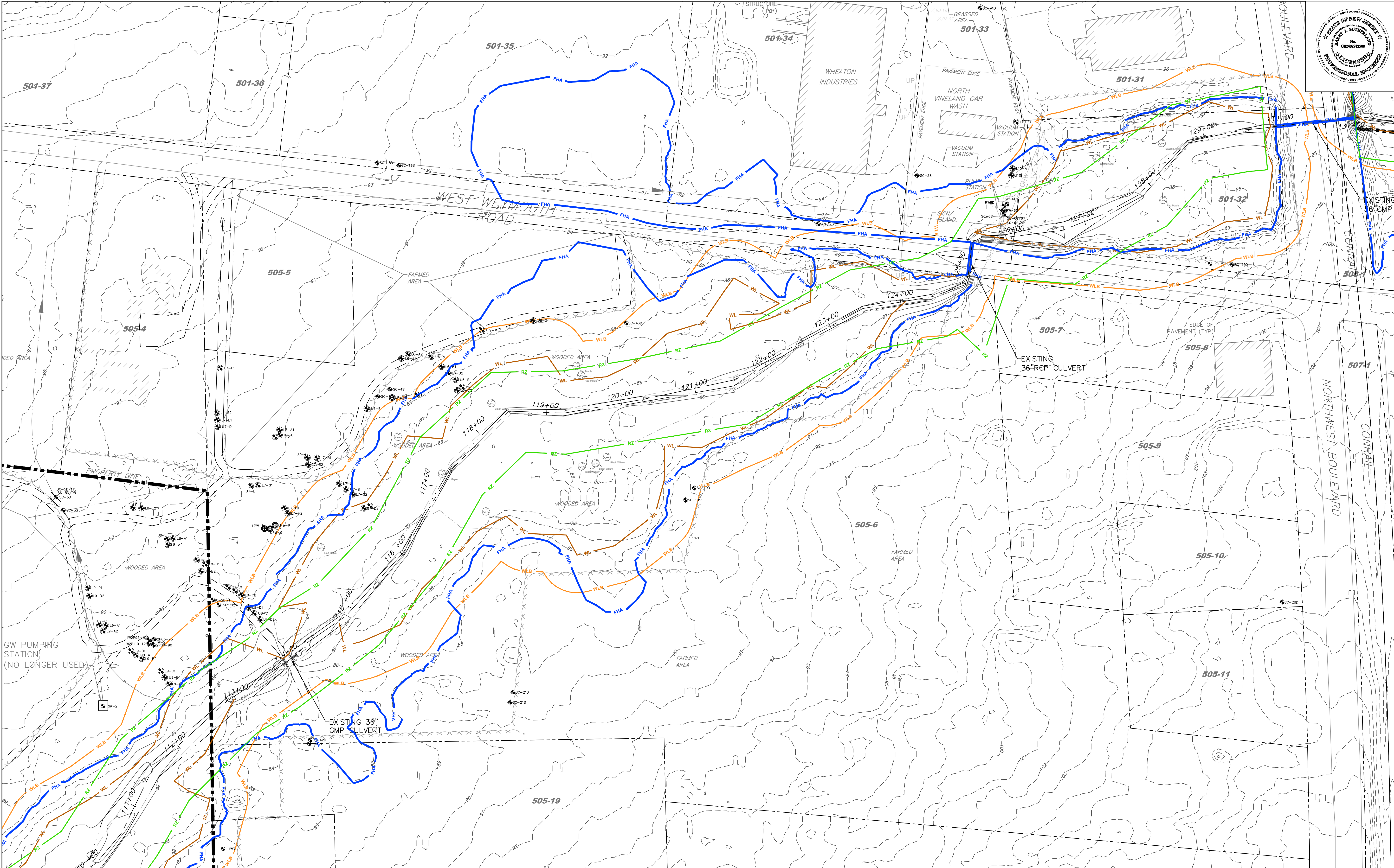
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Certificate of Authorization #24GA28047100

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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

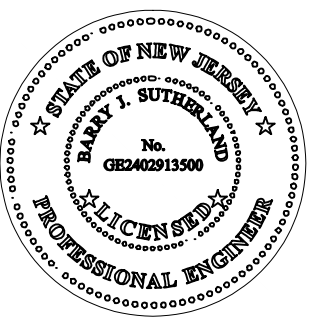
TITLE:
**EXISTING CONDITIONS PLAN
PHASE 2**

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	

C-103



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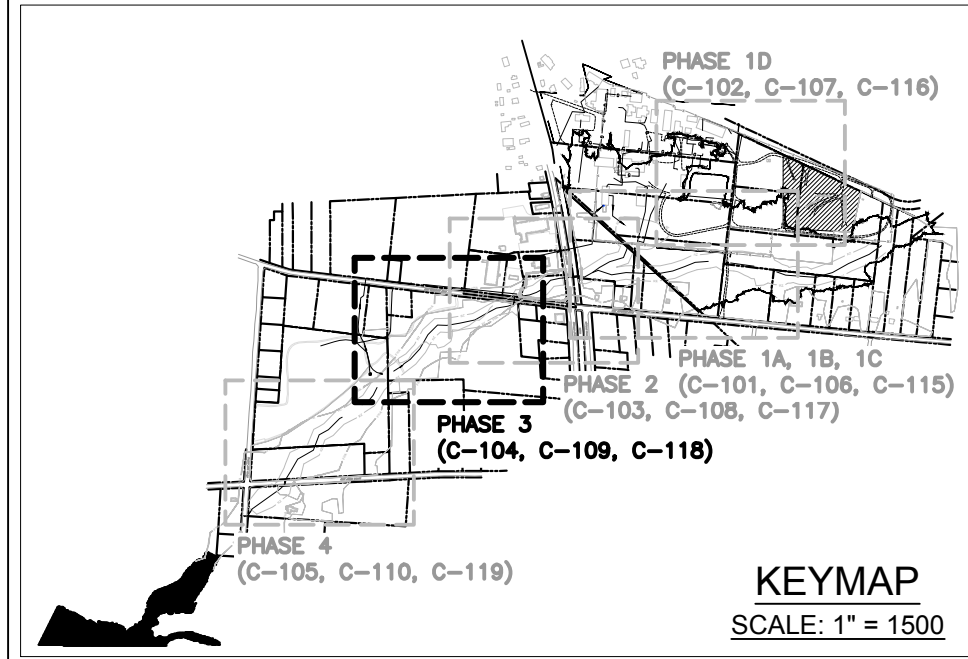
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**SHIELDALLOY
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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**EXISTING CONDITIONS PLAN
PHASE 3**

Project No.: 112434 Scale: 1" = 60'
Drawn By: MG/SB Date: JULY 2016

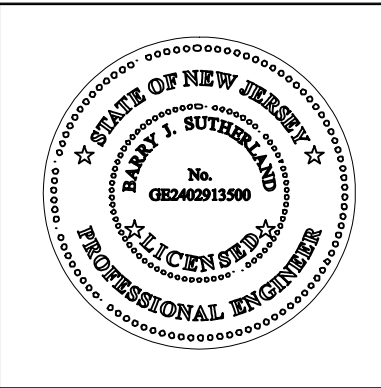
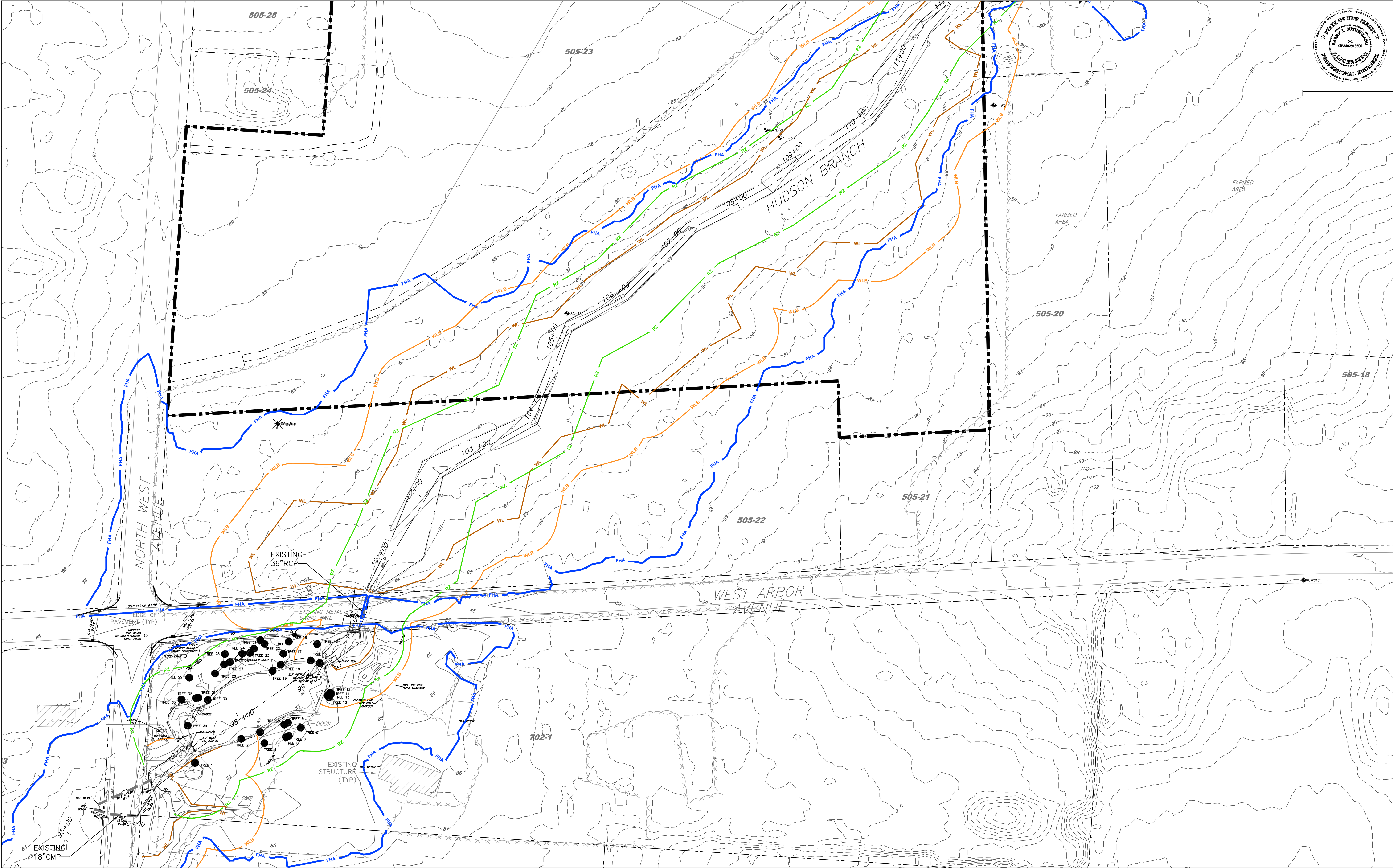
Checked By: BJS/PJH
C-104



LEGEND			
	SITE BOUNDARY LINE		EXISTING DIRT ROAD
	FIELD SURVEYED STREAM CENTERLINE		EXISTING STORMWATER PIPE
	TAX LOT LINE PER TAX MAP		GW RECOVERY LINE
	EDGE OF WATER		BLOCK # - LOT # (PER TAX MAP)
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		ELEVATION CONTOUR PER TRC SURVEY DATA
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
	EXISTING TOP OF BANK		PERFORMANCE MONITORING WELL
	WETLANDS BUFFER		MONITORING WELL
	WETLANDS LIMIT		INJECTION WELL
			EXISTING TREE OF HIGH ECOLOGICAL VALUE

NOTE:
1. FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.

0 60 FT.
APPROXIMATE SCALE



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland

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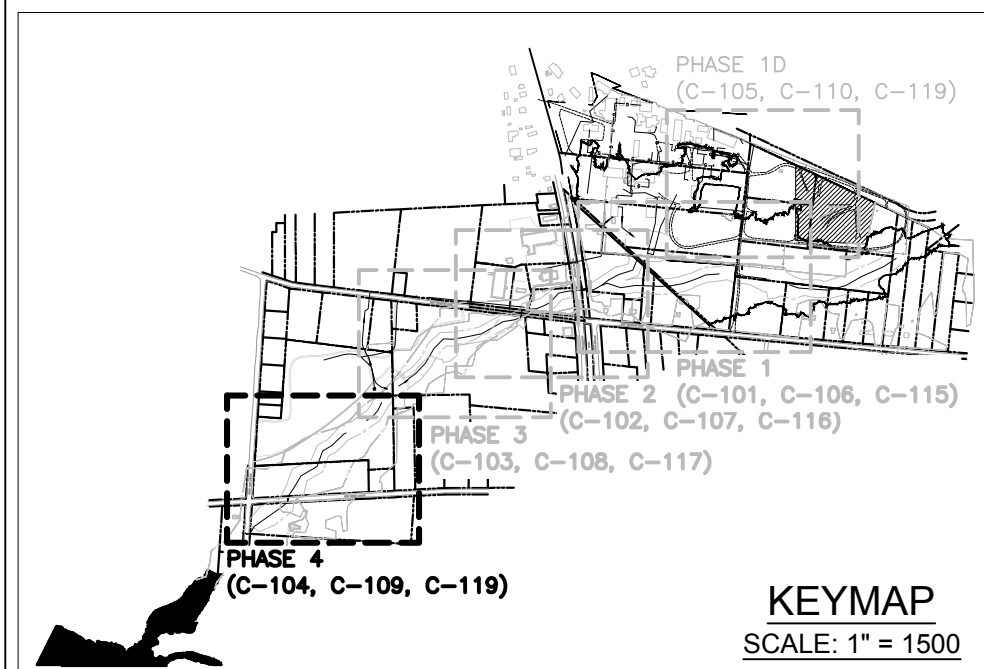


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**SHIELDALLOY
METALLURGICAL CORPORATION**
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**EXISTING CONDITIONS PLAN
PHASE 4**

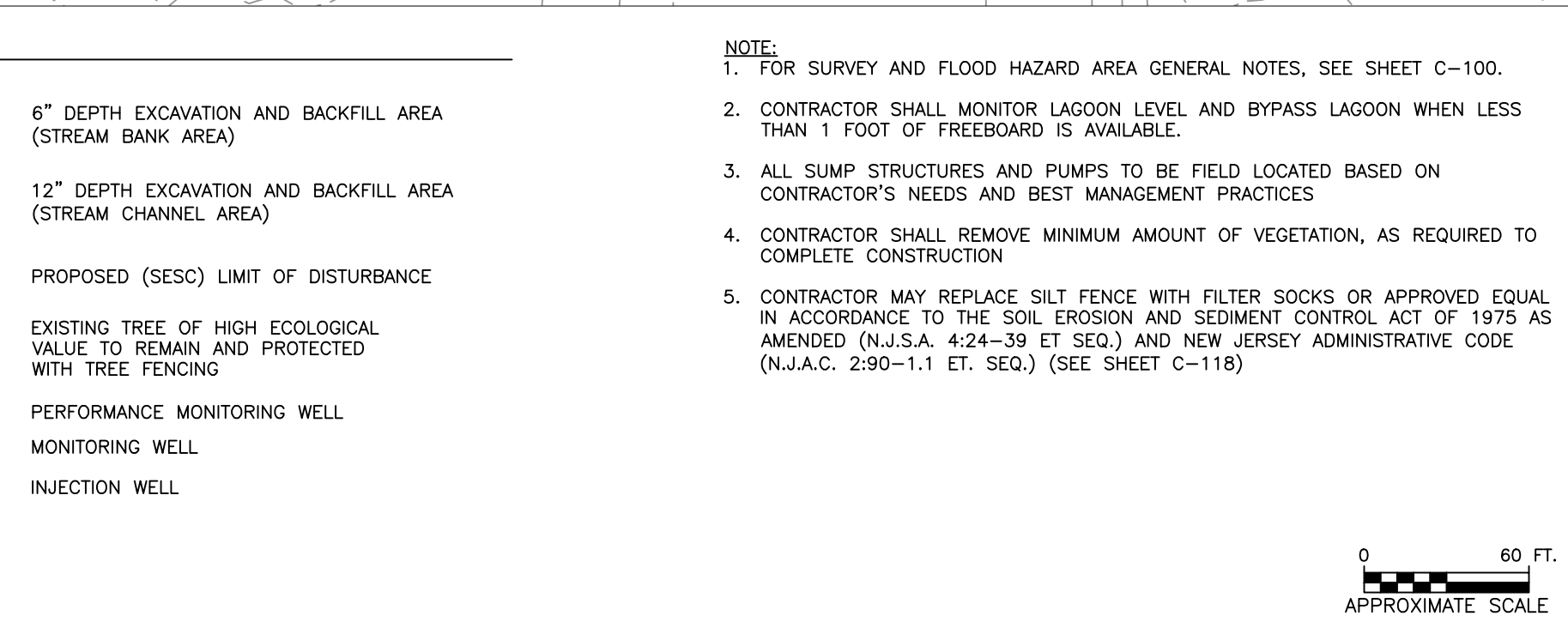
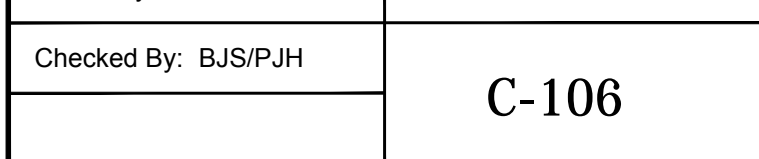
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Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	C-105

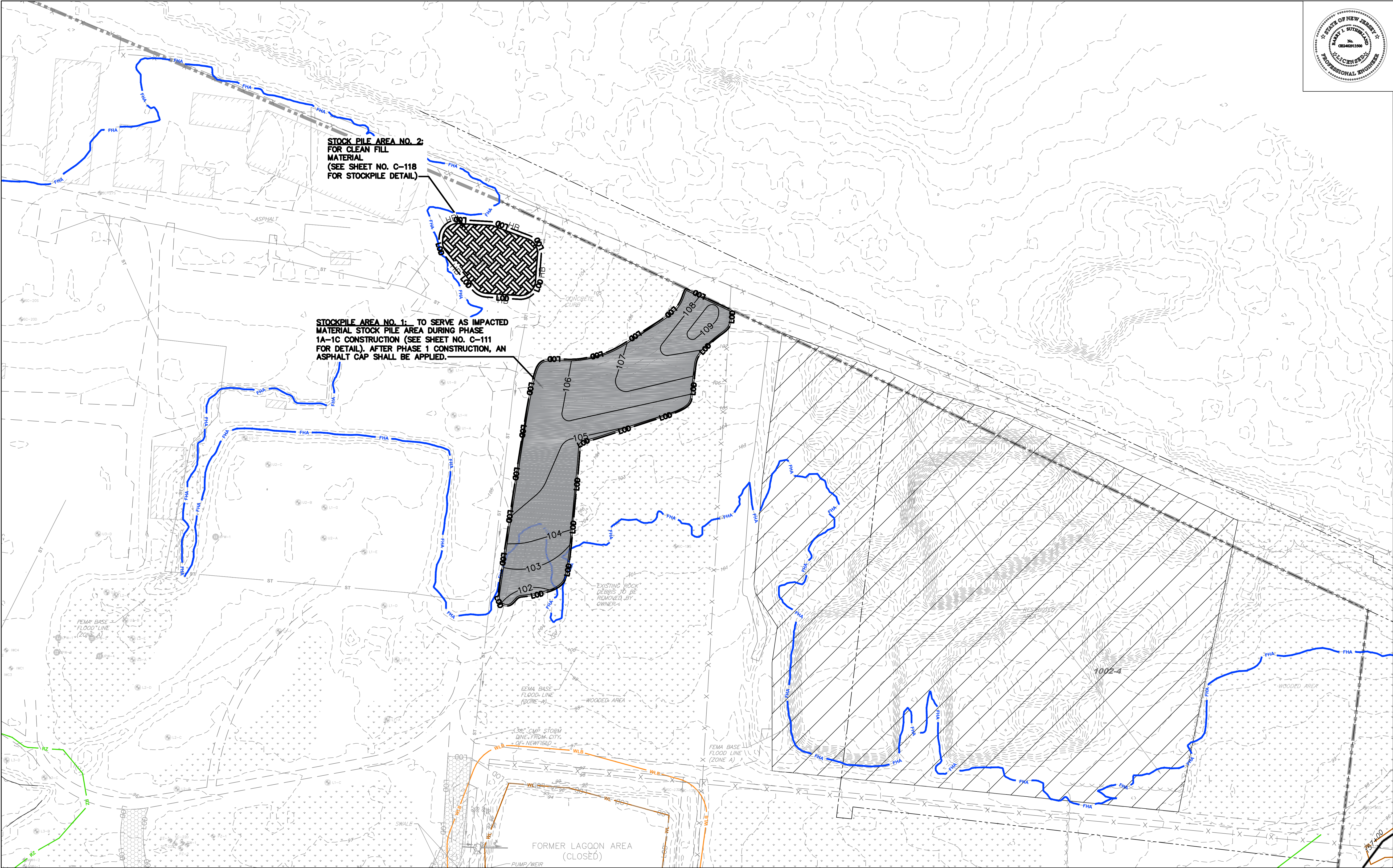


LEGEND	
	SITE BOUNDARY LINE
	FIELD SURVEYED STREAM CENTERLINE
	TAX LOT LINE PER TAX MAP
	EDGE OF WATER
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINATION BY TRC)
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT
	EXISTING TOP OF BANK
	WETLANDS BUFFER
	WETLANDS LIMIT
	EXISTING DIRT ROAD
	BLOCK # - LOT # (PER TAX MAP)
	ELEVATION CONTOUR PER TRC SURVEY DATA
	ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
	PERFORMANCE MONITORING WELL
	MONITORING WELL
	INJECTION WELL
	EXISTING TREE OF HIGH ECOLOGICAL VALUE
	EXISTING TREE

NOTE:
1. FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.

0 60 FT.
APPROXIMATE SCALE





BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland
Date

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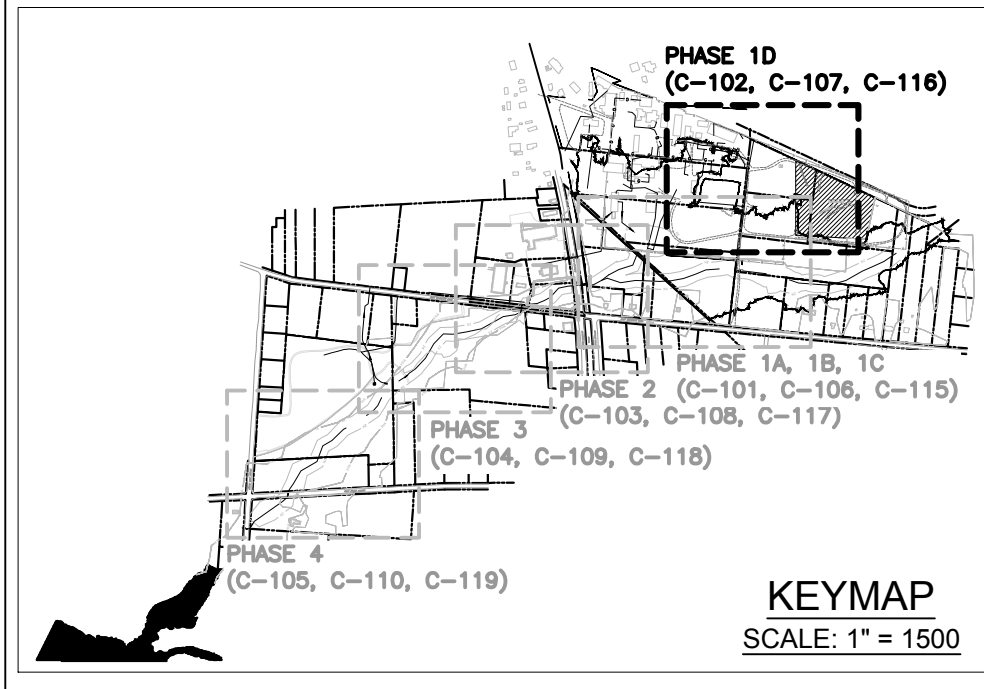


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**SHIELDALLOY
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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**SITE REMEDIATION PLAN
PHASE 1D**

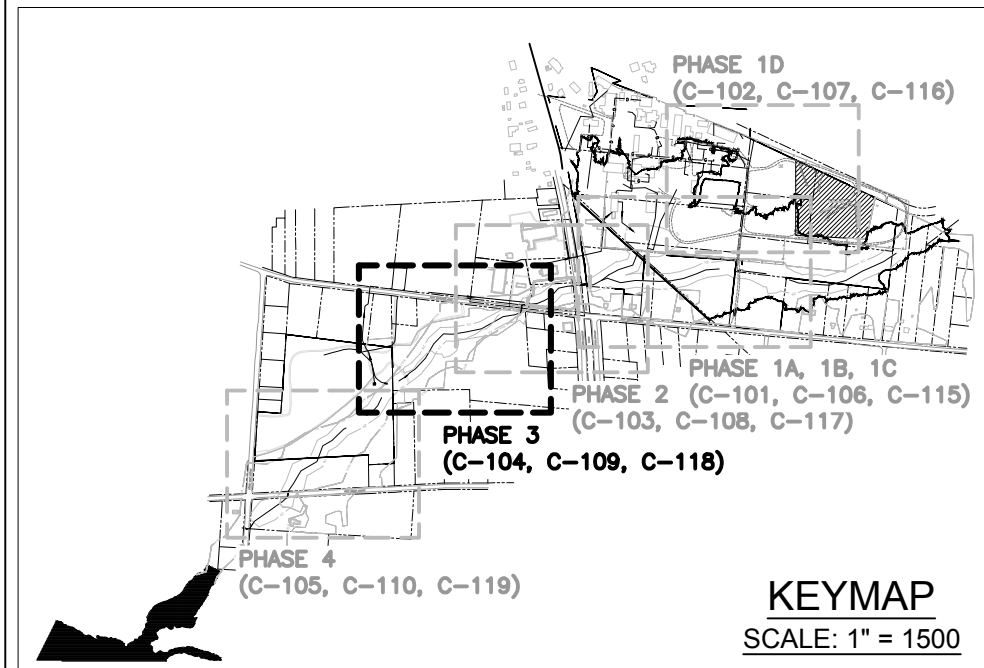
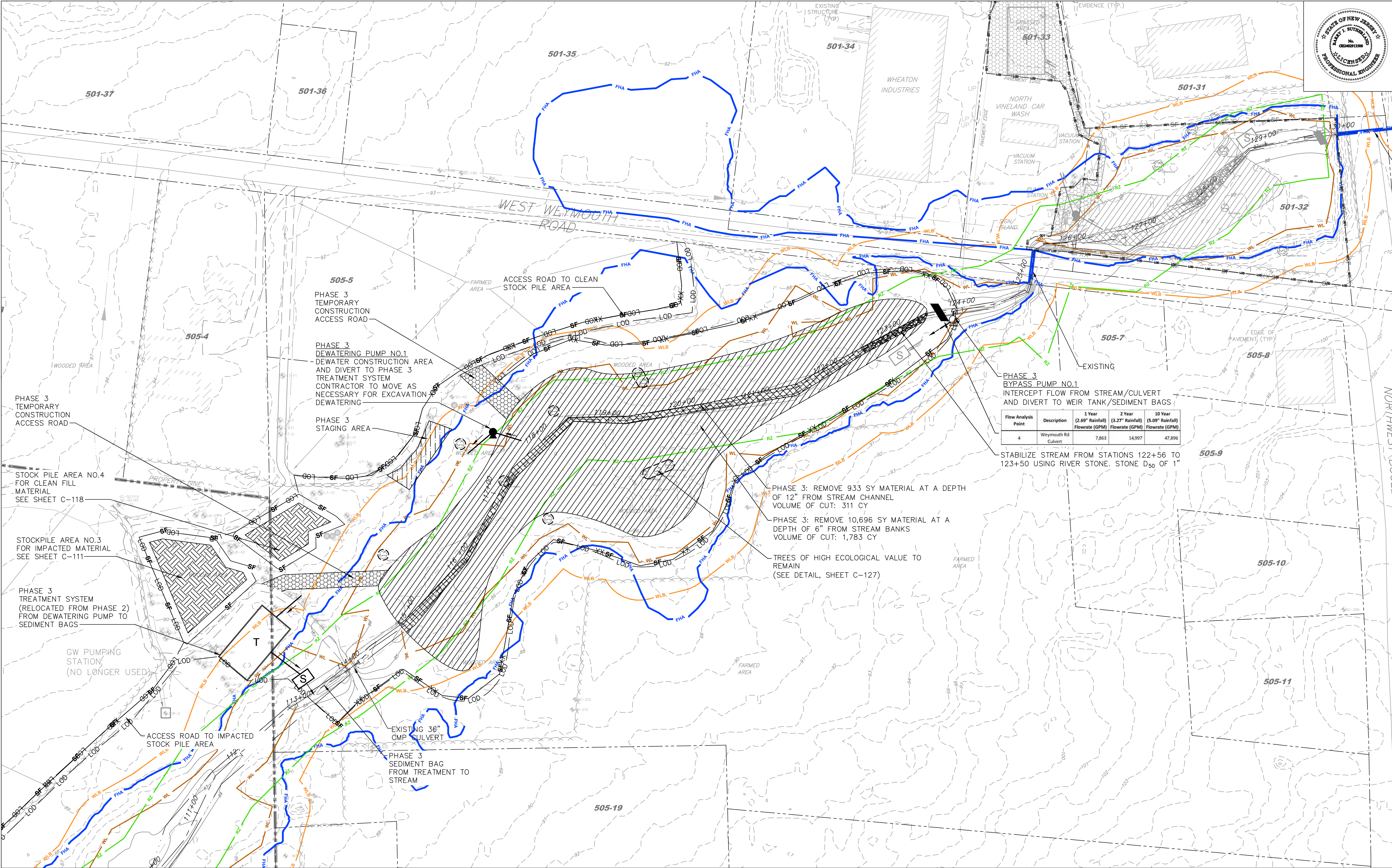
Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	C-107



LEGEND					
	SITE BOUNDARY LINE		EXISTING FENCE LINE		PROPOSED BYPASS PUMP
	FIELD SURVEYED STREAM CENTERLINE		EXISTING DIRT ROAD		PROPOSED STOCKPILE AREA
	TAX LOT LINE PER TAX MAP		EXISTING STORMWATER PIPE		PROPOSED ACCESS ROAD
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		GW RECOVERY LINE		PROPOSED ASPHALT CAP
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		RESTRICTED AREA		PERFORMANCE MONITORING WELL
	EXISTING TOP OF BANK		PREVIOUSLY CAPPED AREA		MONITORING WELL
	WETLANDS BUFFER		BLOCK # - LOT # (PER TAX MAP)		INJECTION WELL
	WETLANDS LIMIT		ELEVATION CONTOUR PER TRC SURVEY DATA		
			ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA		

NOTE:
1. FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.
2. CONTRACTOR SHALL REMOVE MINIMUM AMOUNT OF VEGETATION, AS REQUIRED TO COMPLETE CONSTRUCTION





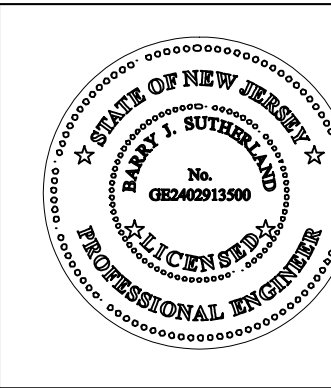
	SITE BOUNDARY LINE
	FIELD SURVEYED STREAM CENTERLINE
	TAX LOT LINE PER TAX MAP
	EDGE OF WATER
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT
	EXISTING TOP OF BANK
	WETLANDS BUFFER
	WETLANDS LIMIT

	EXISTING DIRT ROAD
	EXISTING STORMWATER PIPE
	GW RECOVERY LINE
	BLOCK # - LOT # (PER TAX MAP)
	ELEVATION CONTOUR PER TRC SURVEY DATA
	ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
	6" DEPTH EXCAVATION AND BACKFILL AREA (STREAM BANK AREA)
	12" DEPTH EXCAVATION AND BACKFILL AREA (STREAM CHANNEL AREA)

	PROPOSED TREATMENT SYSTEM
	PROPOSED SEDIMENT BAG
	PROPOSED DEWATERING PUMP
	PROPOSED BYPASS PUMP
	PROPOSED STOCKPILE AREA
	PROPOSED ACCESS ROAD
	PROPOSED STAGING AREA
	PROPOSED CONSTRUCTION FENCE

	PROPOSED CHANNEL PROTECTION AREA
	PROPOSED (SESC) LIMIT OF DISTURBANCE
	PROPOSED STANDARD SILT FENCE
	EXISTING TREE OF HIGH ECOLOGICAL VALUE TO REMAIN AND PROTECTED WITH TREE FENCING
	PERFORMANCE MONITORING WELL
	MONITORING WELL
	INJECTION WELL

- NOTE:
- FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.
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 - CONTRACTOR MAY REPLACE SILT FENCE WITH FILTER SOCKS OR APPROVED EQUAL IN ACCORDANCE TO THE SOIL EROSION AND SEDIMENT CONTROL ACT OF 1975 AS AMENDED (N.J.S.A. 4:24-39 ET SEQ.) AND NEW JERSEY ADMINISTRATIVE CODE (N.J.A.C. 2:90-1.1 ET. SEQ.) (SEE SHEET C-118)



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Barry J. Sutherland

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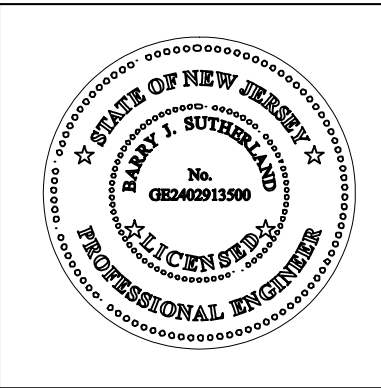
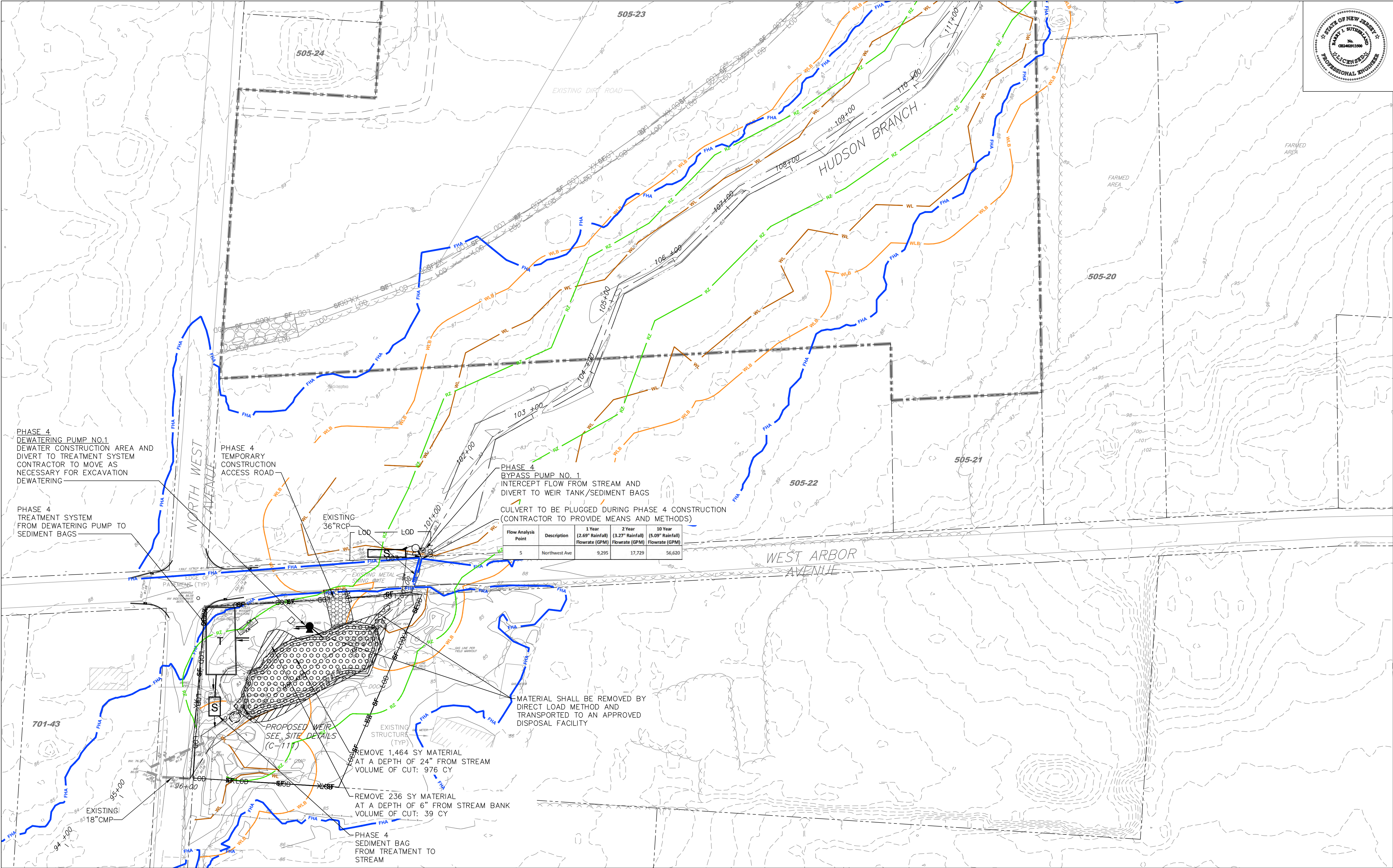


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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

**SITE REMEDIATION PLAN
PHASE 3**

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	C-109



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NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland

3/1/17
Date

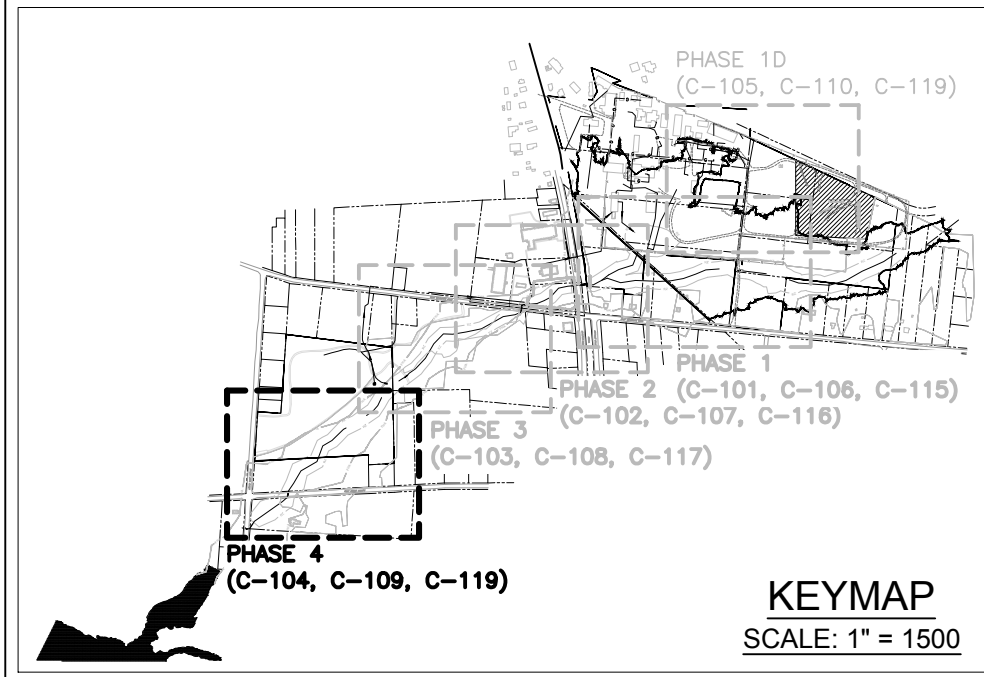
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LEGEND			
	SITE BOUNDARY LINE		EXISTING DIRT ROAD
	FIELD SURVEYED STREAM CENTERLINE		PROPOSED ACCESS ROAD
	TAX LOT LINE PER TAX MAP		6" DEPTH EXCAVATION AND BACKFILL AREA (STREAM BANK AREA)
	EDGE OF WATER		24" DEPTH EXCAVATION AND BACKFILL AREA (STREAM CHANNEL AREA)
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		PROPOSED CONSTRUCTION FENCE
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		PROPOSED (SESC) LIMIT OF DISTURBANCE
	EXISTING TOP OF BANK		PERFORMANCE MONITORING WELL
	WETLANDS BUFFER		MONITORING WELL
	WETLANDS LIMIT		INJECTION WELL
	PROPOSED TREATMENT SYSTEM		PROPOSED GRADING CONTOURS
	PROPOSED SEDIMENT BAG		
	PROPOSED DEWATERING PUMP		
	PROPOSED BYPASS PUMP		
	PROPOSED STANDARD SILT FENCE		

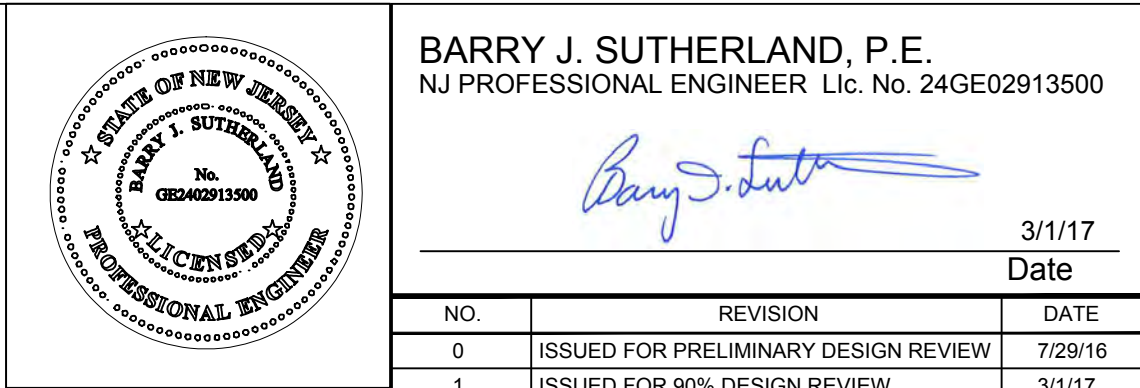
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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**SITE REMEDIATION PLAN
PHASE 4**

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS/PJH	C-110



NO.	REVISION	DATE
0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

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- THIS PLAN IS ISSUED FOR REGULATORY REVIEW PURPOSES ONLY.
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N.T.S.



SHIELDALLOY
METALLURGICAL CORPORATION

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

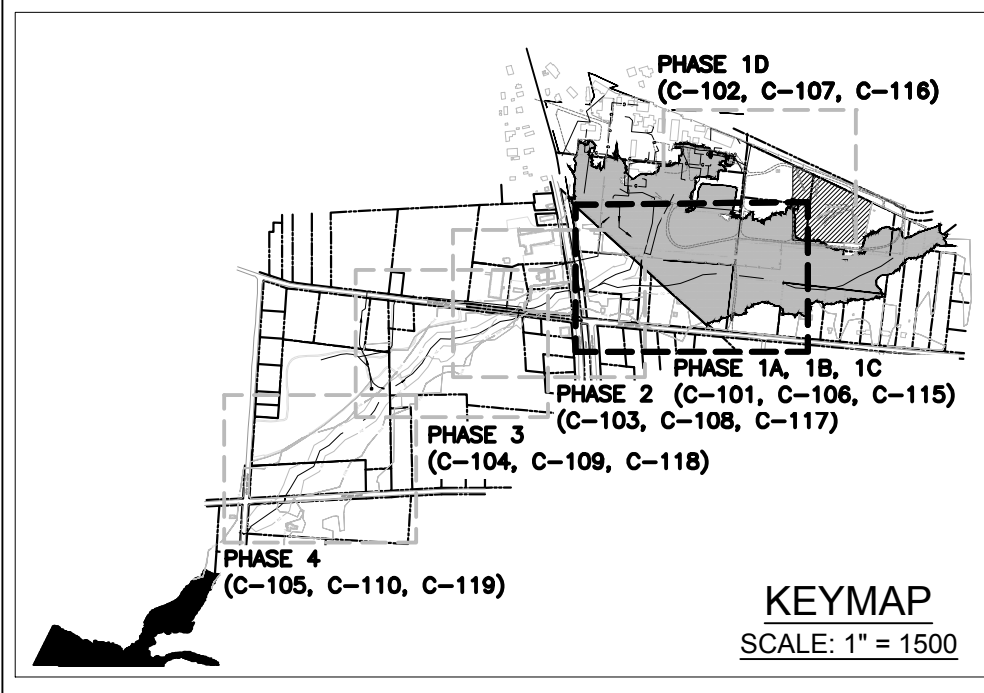
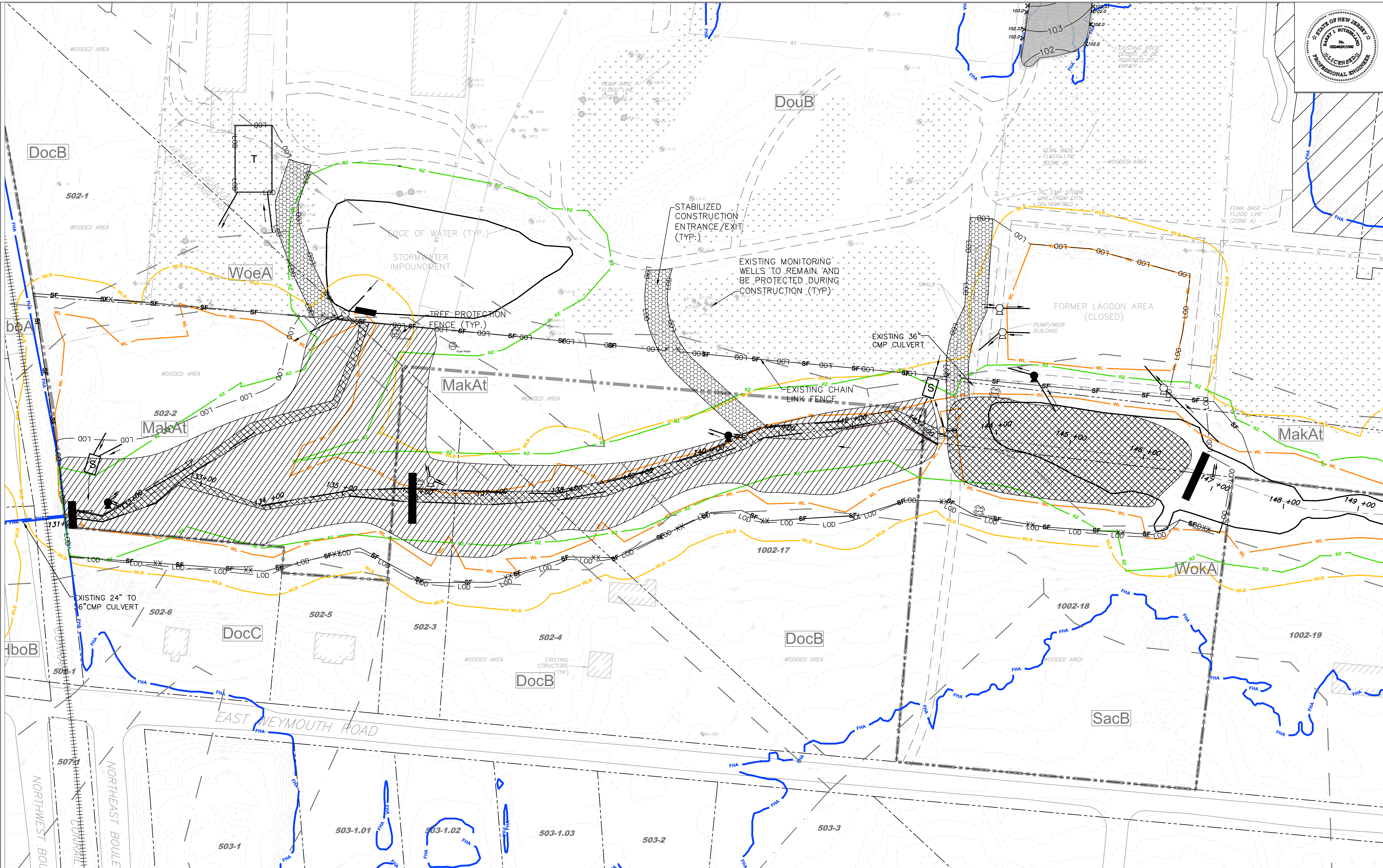
TITLE: SITE DETAILS
SHEET 2 OF 2

Project No.: 112434	Scale: AS SHOWN
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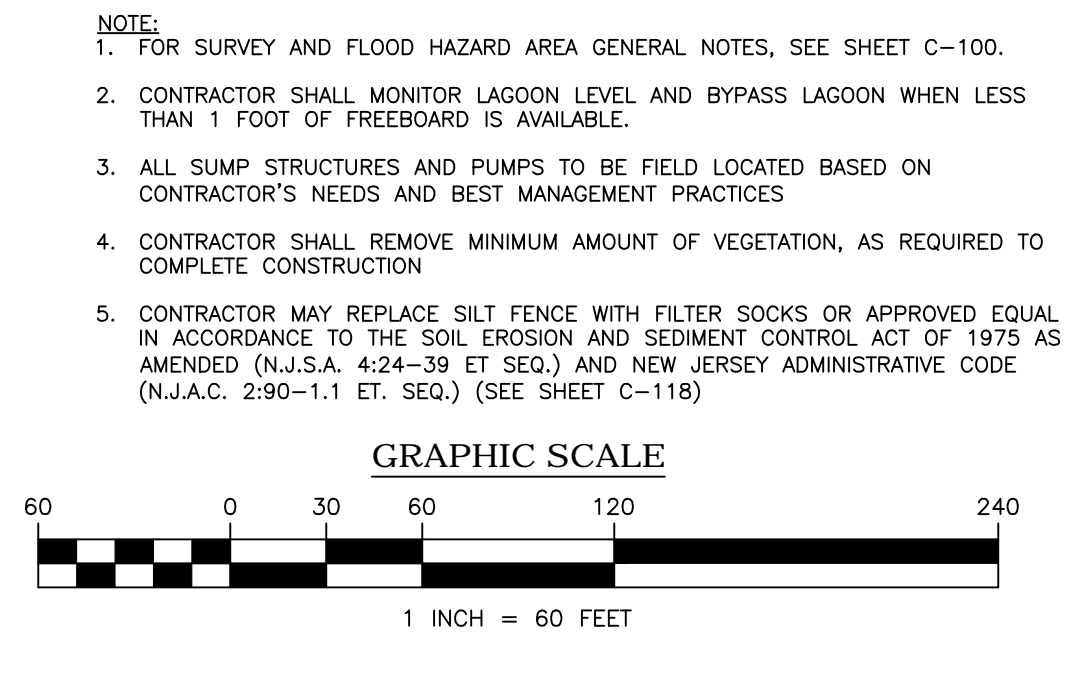
Drawn By: SJ	Date: JULY 2016
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Checked By: BJS/PJH

C-112



LEGEND			
	FIELD SURVEYED STREAM CENTERLINE		WETLANDS BUFFER
	SITE BOUNDARY LINE		EXISTING STORMWATER PIPE
	TAX LOT LINE PER TAX MAP		EXISTING FENCE LINE
	EDGE OF WATER		EXISTING DIRT ROAD
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		GW RECOVERY LINE
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		BLOCK # - LOT # (PER TAX MAP)
	EXISTING TOP OF BANK		ELEVATION CONTOUR PER TRC SURVEY DATA
	WETLANDS LIMIT		ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
	PROPOSED TREATMENT SYSTEM		PROPOSED CONSTRUCTION FENCE
	PROPOSED SEDIMENT BAG		PROPOSED (SESC) LIMIT OF DISTURBANCE
	PROPOSED DEWATERING PUMP		EXISTING TREE OF HIGH ECOLOGICAL VALUE TO REMAIN AND PROTECTED WITH TREE FENCING
	PROPOSED BYPASS PUMP		PERFORMANCE MONITORING WELL
	PROPOSED ASPHALT CAP		MONITORING WELL
	PROPOSED STABILIZED CONSTRUCTION ENTRANCE		INJECTION WELL
	PROPOSED STAGING AREA		NATURAL RESOURCE CONSERVATION SERVICE (NRCS) SOIL TYPE LIMIT LINE
	PROPOSED STANDARD SILT FENCE		NRCS SOIL TYPE



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland

3/1/17

Date

NO.	REVISION	DATE
0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

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AREA OF DISTURBANCE
PHASE 1A, 1B AND 1C

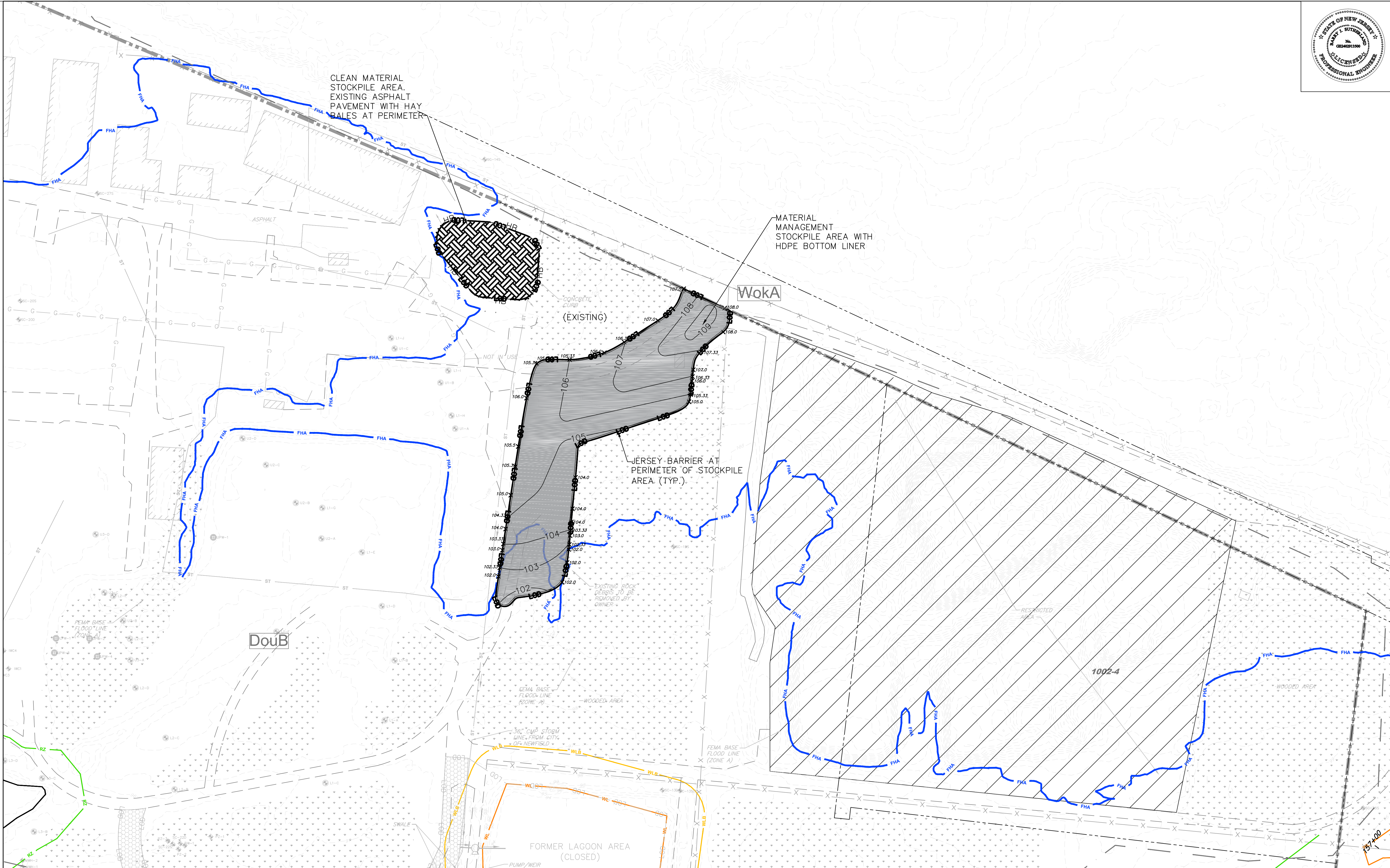
410,044.61 SF=9.41 ACRES

TRC Engineers, Inc.
41 SPRING STREET
NEW PROVIDENCE, NEW JERSEY 07974
PHONE NO. (908) 988-1700
FAX NO. (973) 564-6442
Certificate of Authorization #24GA28047100

SHIELDALLOY
METALLURGICAL CORPORATION
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE: SOIL EROSION AND SEDIMENT CONTROL PLAN
PHASE 1A, 1B, 1C

Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JULY 2016
Checked By: BJS/PJH	C-113



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

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**AREA OF DISTURBANCE
PHASE 1D**

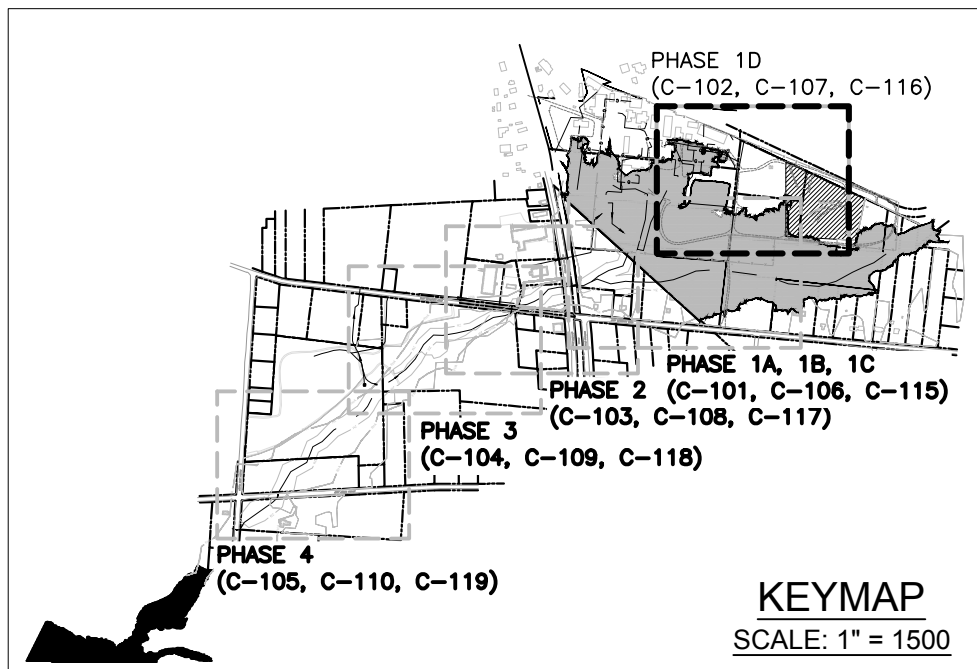
57,095.75 SF=1.31 ACRES

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41 SPRING STREET
NEW PROVIDENCE, NEW JERSEY 07974
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**SHIELDALLOY
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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

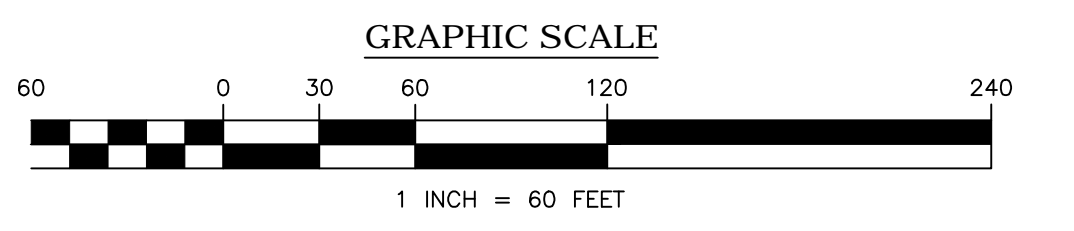
**TITLE: SOIL EROSION AND SEDIMENT
CONTROL PLAN
PHASE 1D**

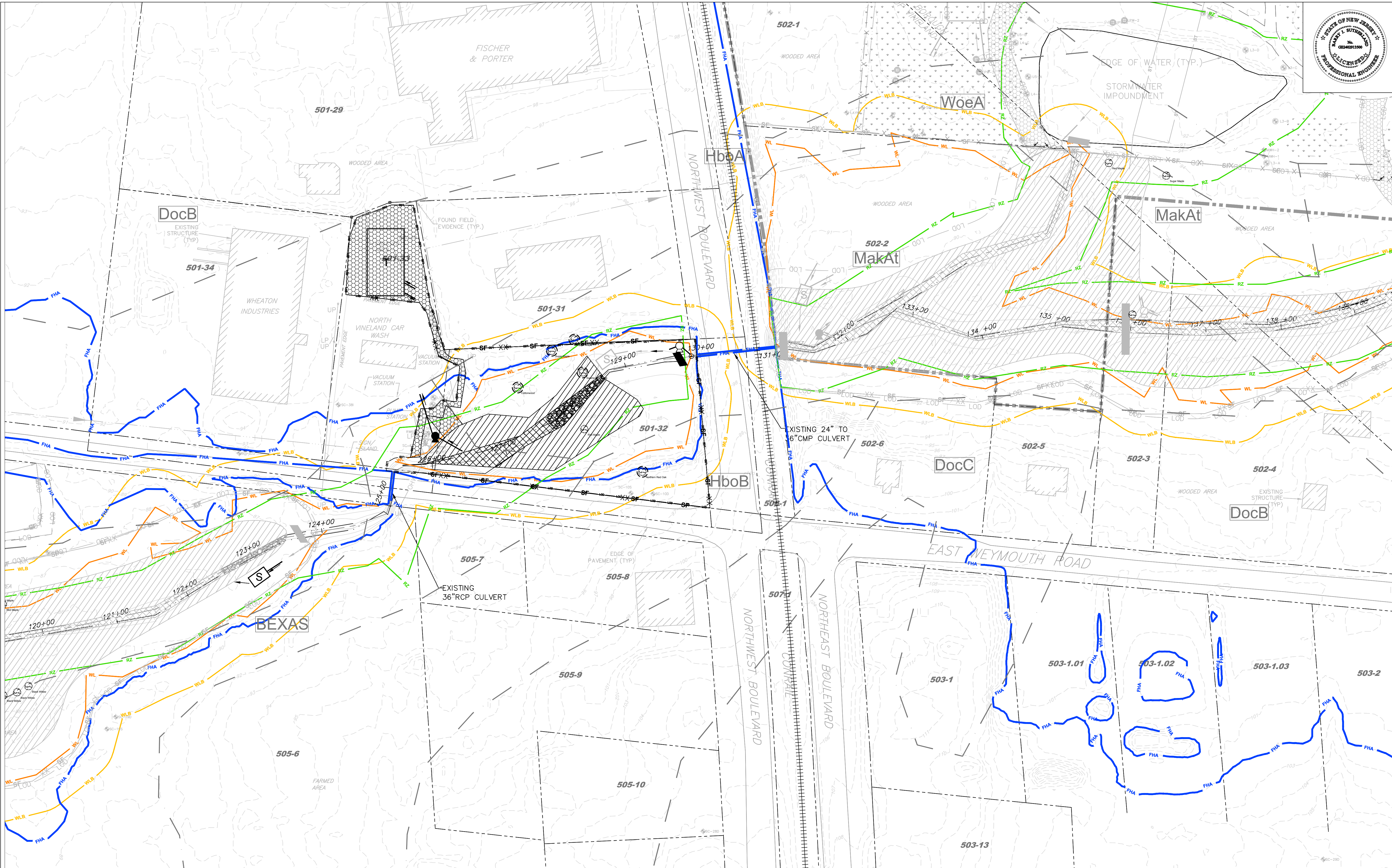
Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JULY 2016
Checked By: BJS/PJH	C-114



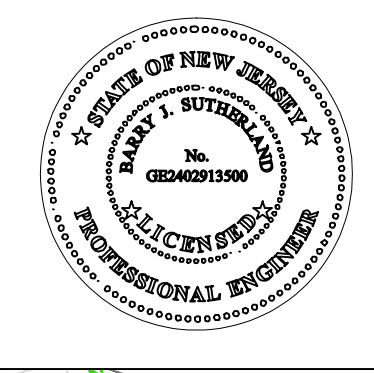
LEGEND	
	SITE BOUNDARY LINE
	FIELD SURVEYED STREAM CENTERLINE
	TAX LOT LINE PER TAX MAP
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT
	EXISTING TOP OF BANK
	WETLANDS BUFFER
	WETLANDS LIMIT
	EXISTING FENCE LINE
	EXISTING DIRT ROAD
	EXISTING STORMWATER PIPE
	GW RECOVERY LINE
	RESTRICTED AREA
	PREVIOUSLY CAPPED AREA
	BLOCK # - LOT # (PER TAX MAP)
	ELEVATION CONTOUR PER TRC SURVEY DATA
	ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
	PROPOSED BYPASS PUMP
	PROPOSED STOCKPILE AREA
	PROPOSED ACCESS ROAD
	PROPOSED ASPHALT CAP
	PERFORMANCE MONITORING WELL
	MONITORING WELL
	INJECTION WELL
	PROPOSED (SESC) LIMIT OF DISTURBANCE
	PROPOSED HAY BALES
	NATURAL RESOURCE CONSERVATION SERVICE (NRCS) SOIL TYPE LIMIT LINE
	NRCS SOIL TYPE

- NOTE:
- FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.
 - CONTRACTOR SHALL REMOVE MINIMUM AMOUNT OF VEGETATION, AS REQUIRED TO COMPLETE CONSTRUCTION





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AREA OF DISTURBANCE PHASE 2

81,803.93 SF=1.88 ACRES

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**SHIELDALLOY
METALLURGICAL CORPORATION**
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

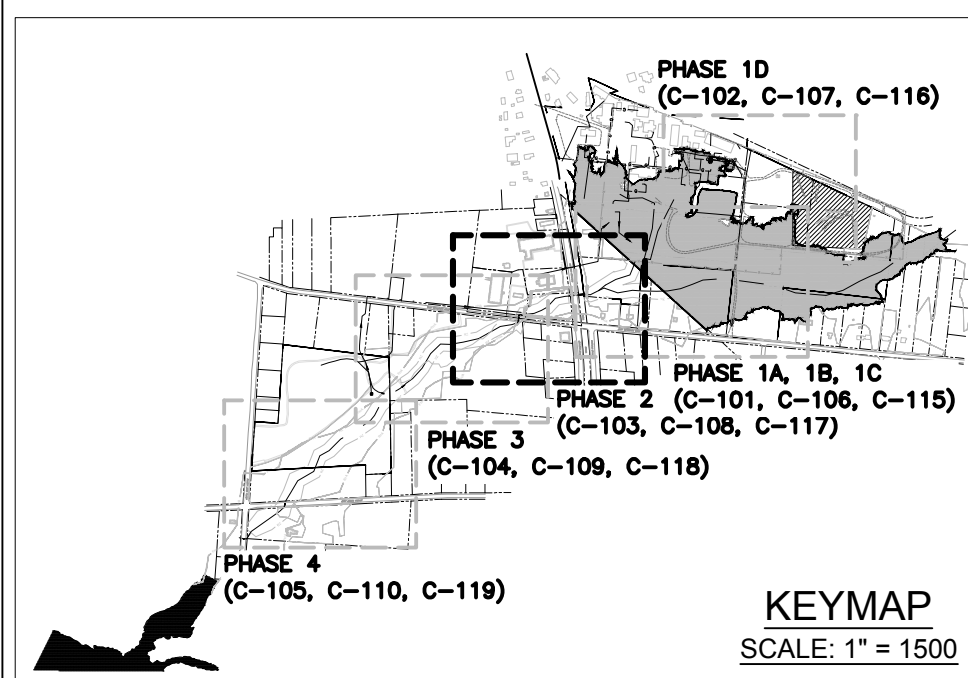
TITLE: **SOIL EROSION AND SEDIMENT
CONTROL PLAN
PHASE 2**

Project No.: 112434 Scale: 1" = 60'

Drawn By: SJ Date: JULY 2016

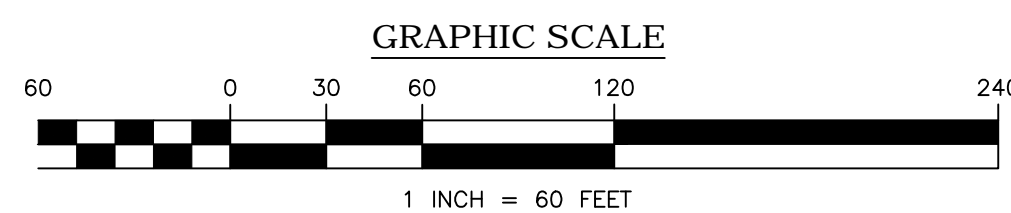
Checked By: BJS/PJH

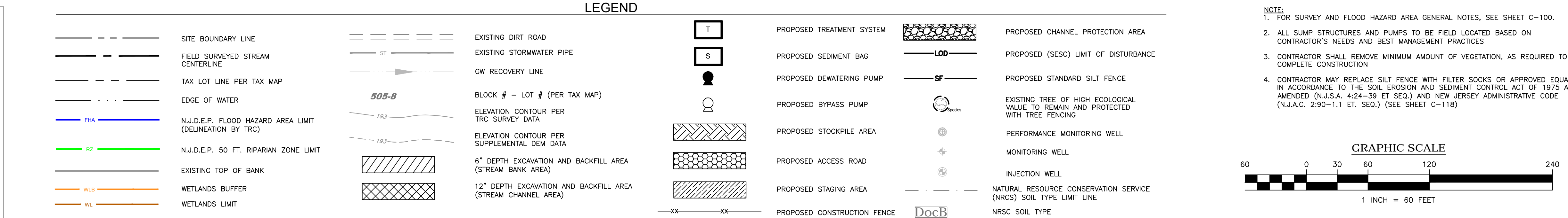
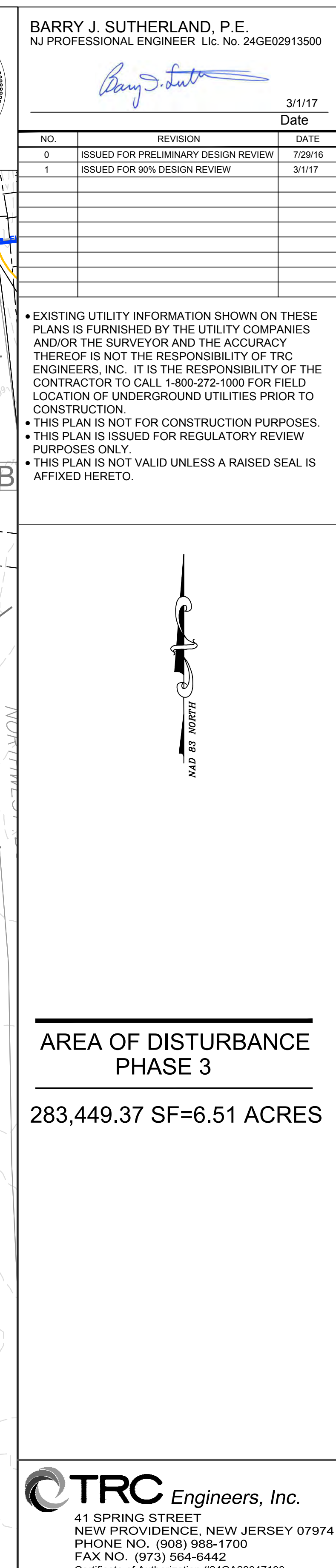
C-115

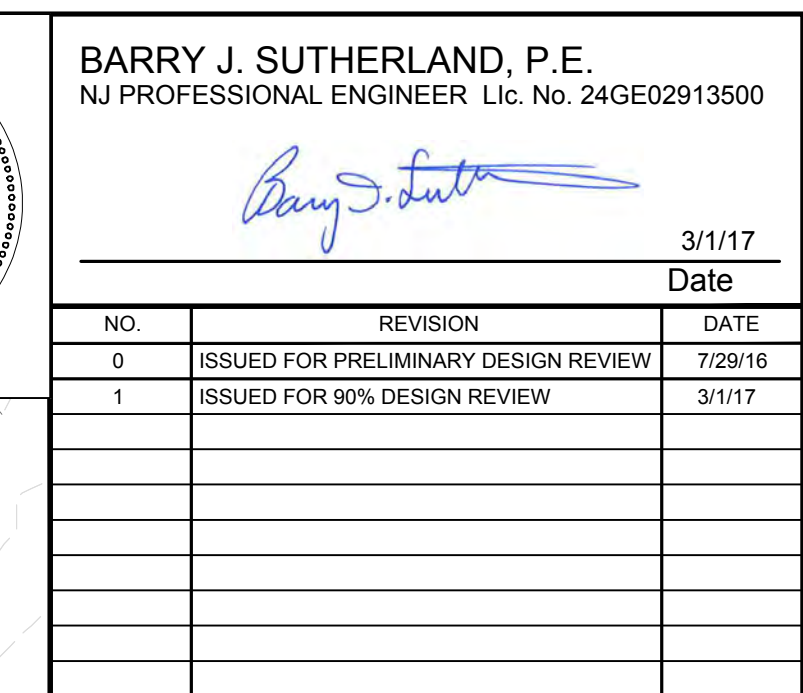


LEGEND							
	SITE BOUNDARY LINE		WETLANDS BUFFER		PROPOSED TREATMENT SYSTEM		PROPOSED CHANNEL PROTECTION AREA
	FIELD SURVEYED STREAM CENTERLINE		WETLANDS LIMIT		PROPOSED SEDIMENT BAG		EXISTING TREE OF HIGH ECOLOGICAL VALUE TO REMAIN AND PROTECTED WITH TREE FENCING
	TAX LOT LINE PER TAX MAP		EXISTING STORMWATER PIPE		PROPOSED DEWATERING PUMP		PERFORMANCE MONITORING WELL
	EDGE OF WATER		GW RECOVERY LINE		PROPOSED BYPASS PUMP		MONITORING WELL
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		EXISTING FENCE LINE		PROPOSED STOCKPILE AREA		INJECTION WELL
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		BLOCK # - LOT # (PER TAX MAP)		PROPOSED ACCESS ROAD		PROPOSED STANDARD SILT FENCE
	EXISTING TOP OF BANK		ELEVATION CONTOUR PER TRC SURVEY DATA		6" DEPTH EXCAVATION AND BACKFILL AREA (STREAM BANK AREA)		NATURAL RESOURCE CONSERVATION SERVICE (NRCS) SOIL TYPE LIMIT LINE
	PROPOSED CONSTRUCTION FENCE		ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA		12" DEPTH EXCAVATION AND BACKFILL AREA (STREAM CHANNEL AREA)		NRCS SOIL TYPE
	PROPOSED (SESC) LIMIT OF DISTURBANCE						

- NOTE:
- FOR SURVEY AND FLOOD HAZARD AREA GENERAL NOTES, SEE SHEET C-100.
 - ALL SUMP STRUCTURES AND PUMPS TO BE FIELD LOCATED BASED ON CONTRACTOR'S NEEDS AND BEST MANAGEMENT PRACTICES
 - CONTRACTOR SHALL REMOVE MINIMUM AMOUNT OF VEGETATION, AS REQUIRED TO COMPLETE CONSTRUCTION
 - CONTRACTOR MAY REPLACE SILT FENCE WITH FILTER SOCKS OR APPROVED EQUIV. IN ACCORDANCE TO THE SOIL EROSION AND SEDIMENT CONTROL ACT OF 1975 AS AMENDED (N.J.S.A. 4:24-39 ET. SEQ.) AND NEW JERSEY ADMINISTRATIVE CODE (N.J.A.C. 2:90-1.1 ET. SEQ.) (SEE SHEET C-118)





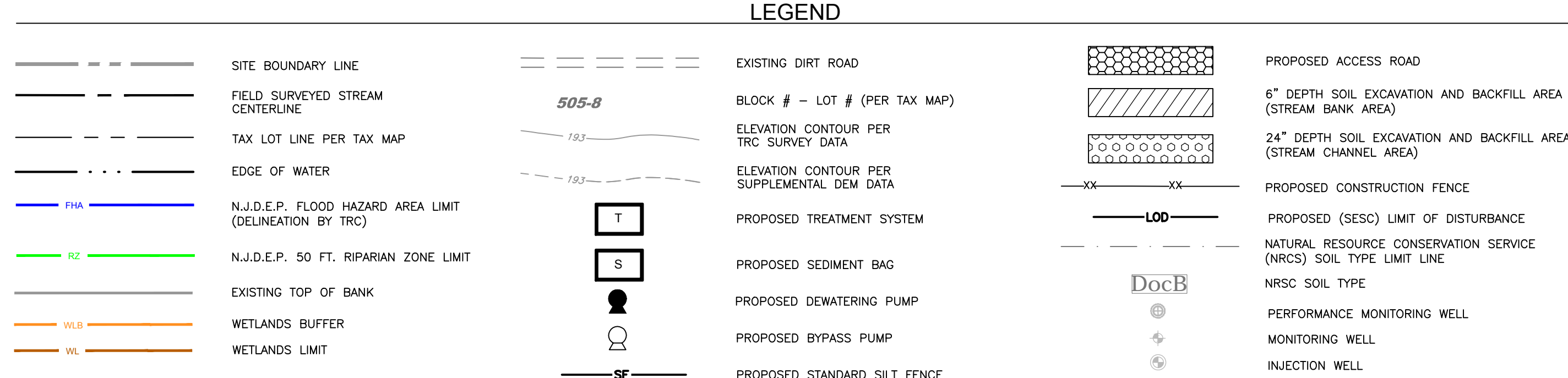


62,137.46 SF=1.43 ACRES

**SHIELDALLOY
METALLURGICAL CORPORATION**

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JULY 2016
Checked By: BJS/PJH	C-117

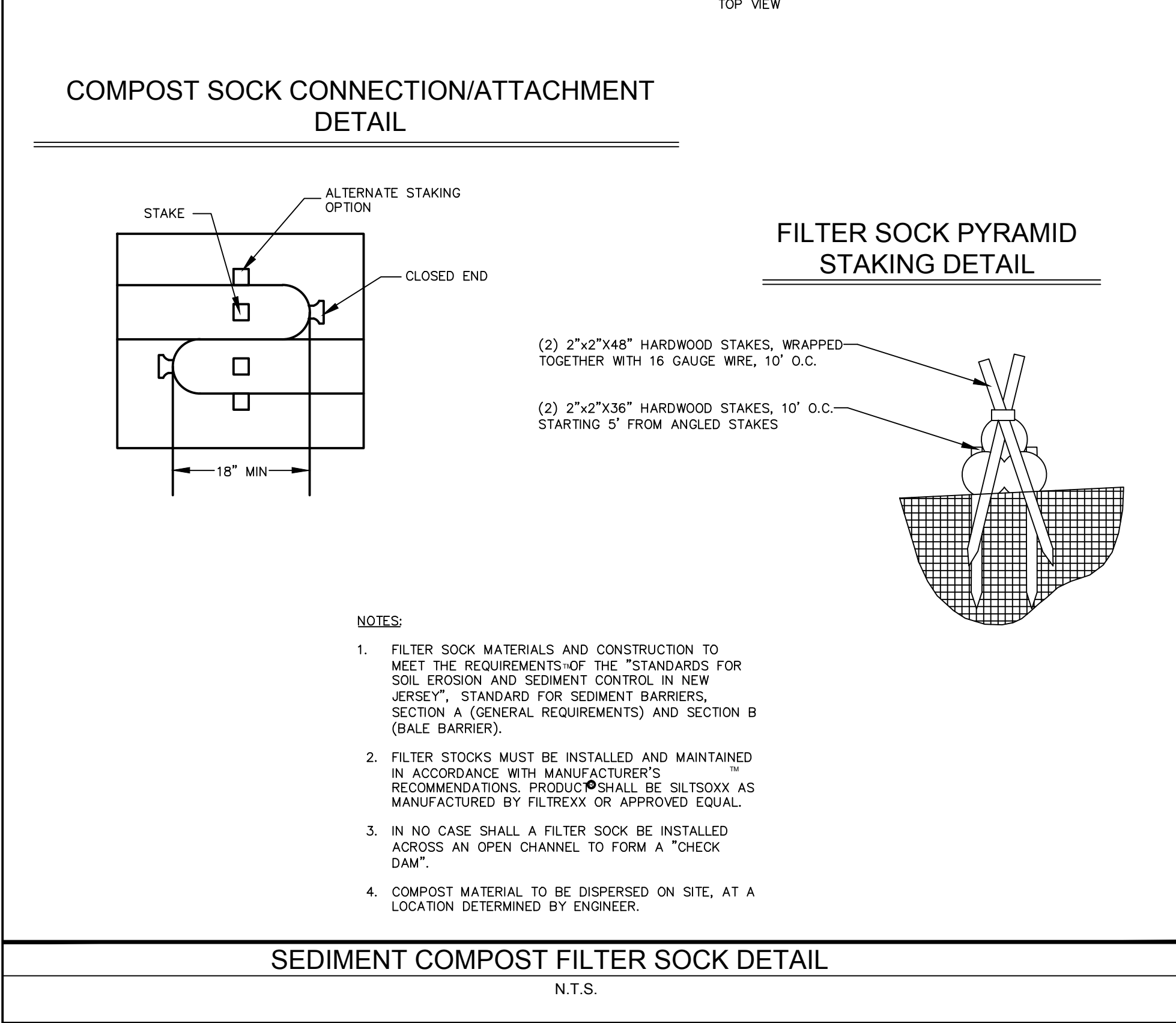
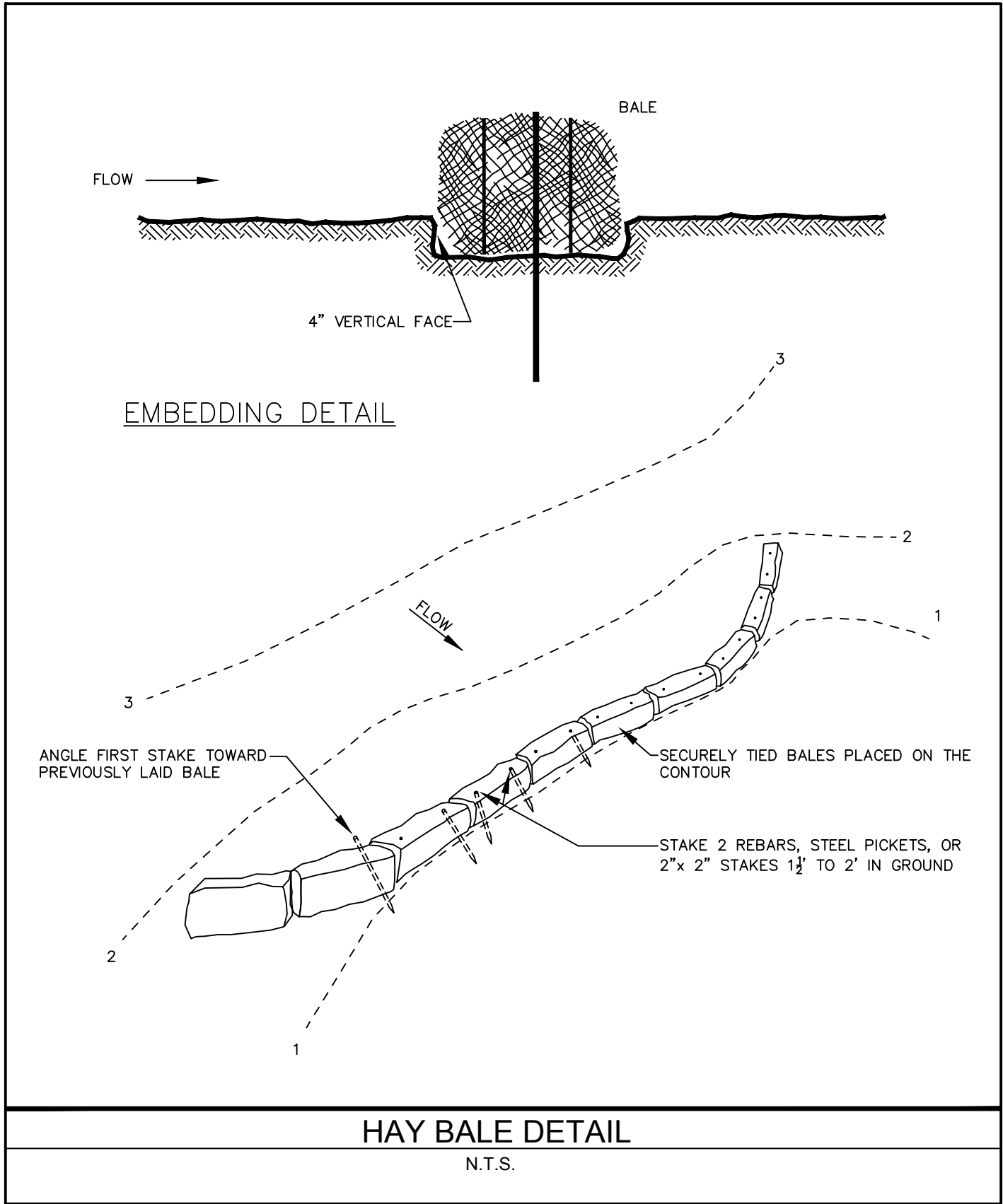


GRAPHIC SCALE

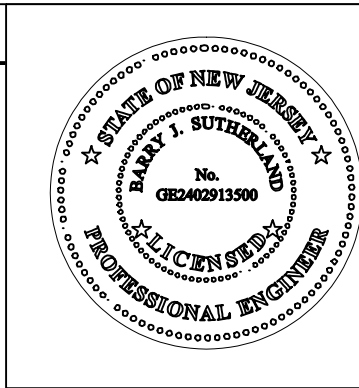
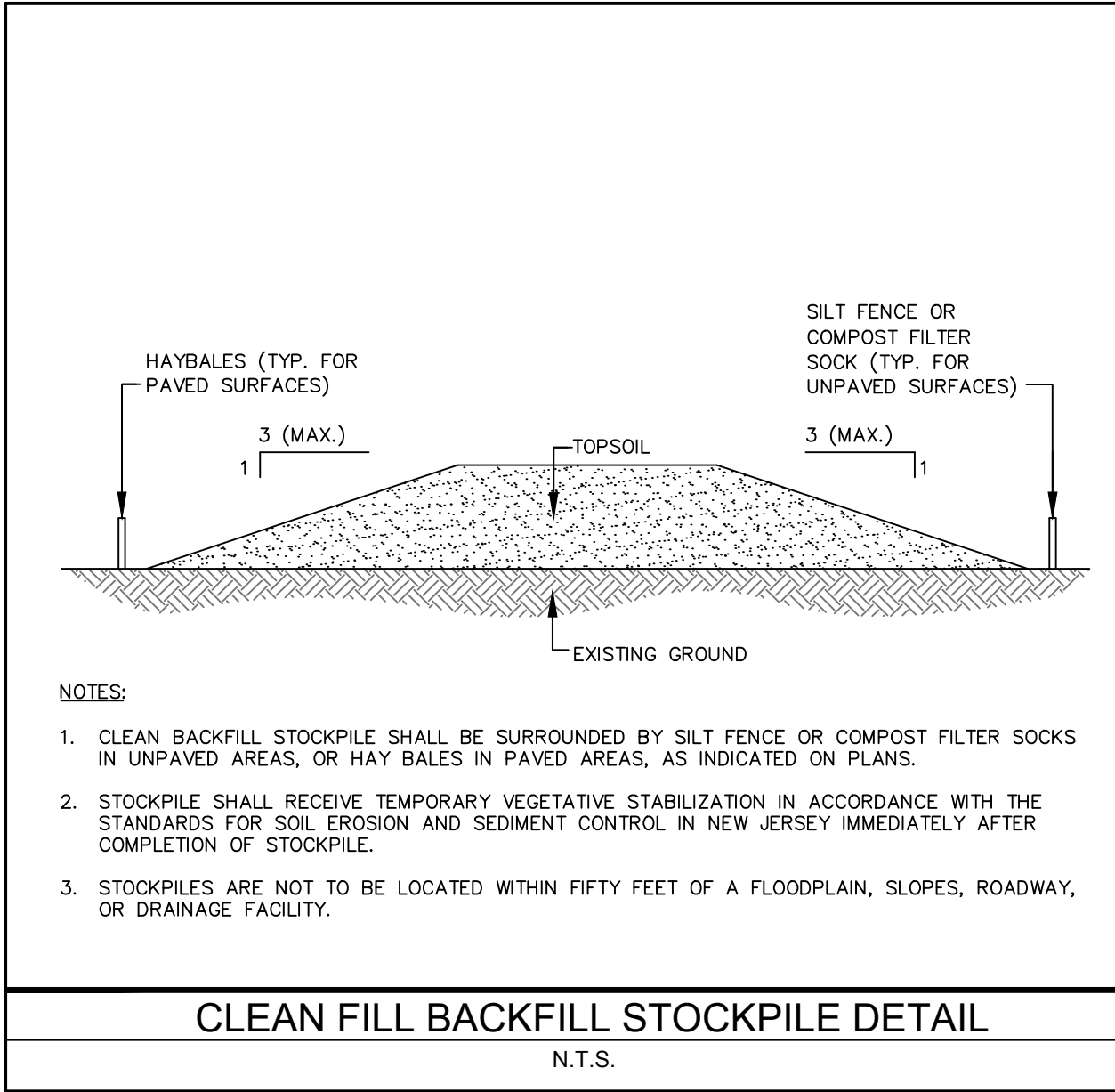
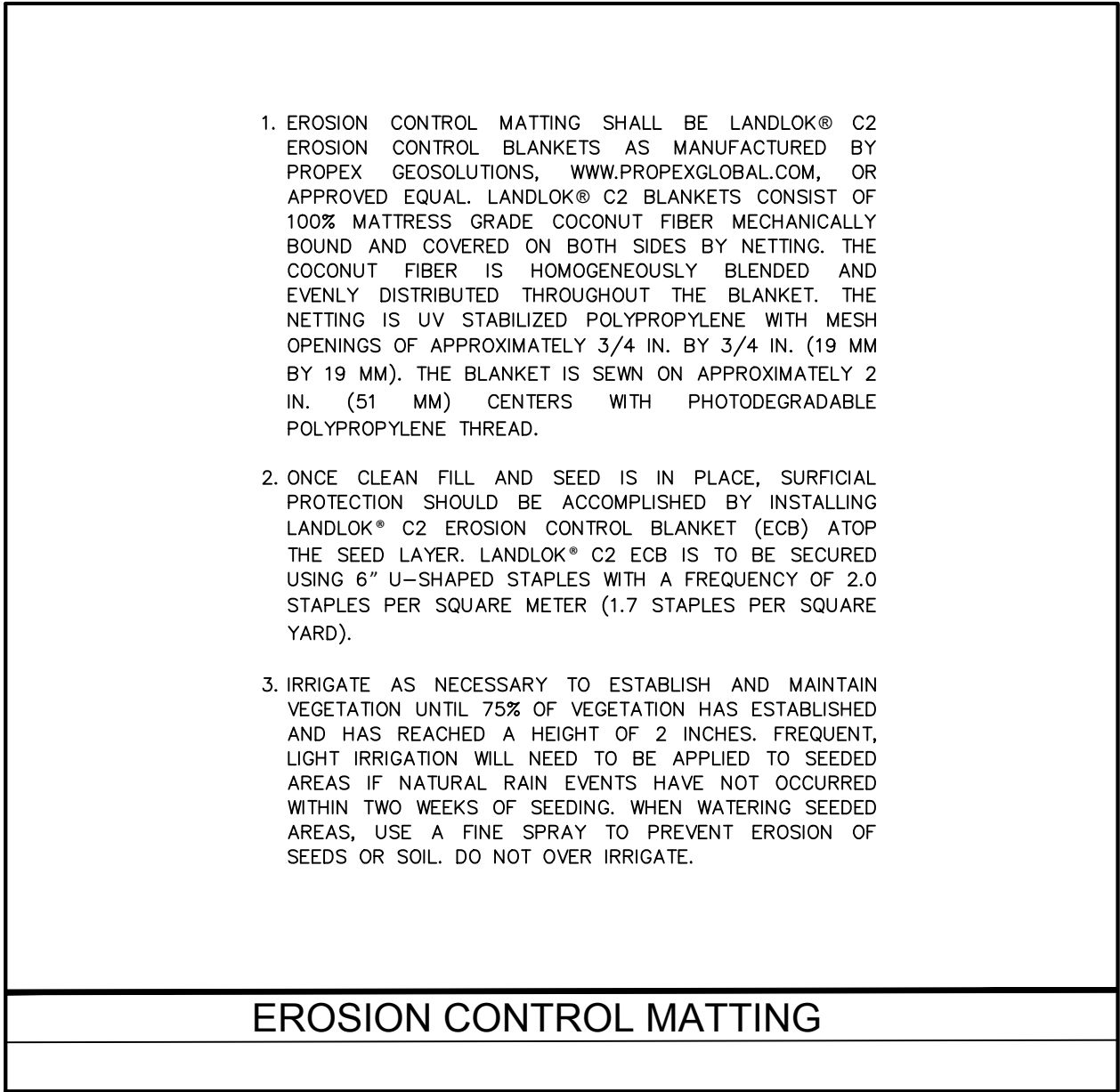
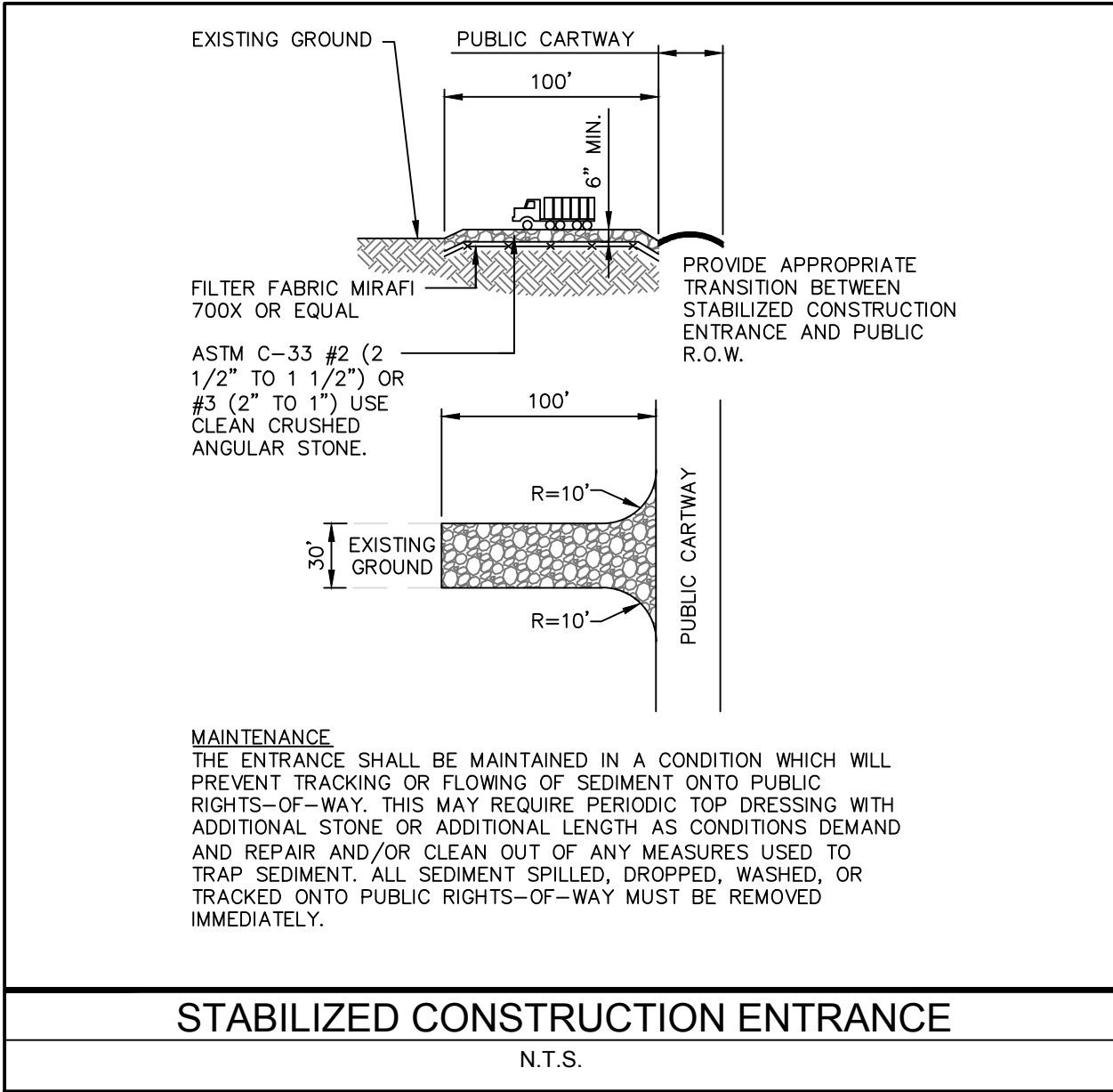
1 INCH = 60 FEET

GLOUCESTER COUNTY SOIL CONSERVATION DISTRICT
 SOIL EROSION AND SEDIMENT CONTROL NOTES

- ALL APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY GRADING OPERATION AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
- SOIL EROSION AND SEDIMENT CONTROL PRACTICES ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
- THE CONTRACTOR SHALL PERFORM ALL WORK, FURNISH ALL MATERIALS AND INSTALL ALL MEASURES REQUIRED TO REASONABLY CONTROL SOIL EROSION RESULTING FROM CONSTRUCTION OPERATIONS AND PREVENT EXCESSIVE FLOW OF SEDIMENT FROM THE CONSTRUCTION SITE.
- ANY DISTURBED AREA THAT IS TO BE LEFT EXPOSED FOR MORE THAN THIRTY(30) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING AND FERTILIZATION IN ACCORDANCE WITH THE NEW JERSEY STANDARDS AND THEIR RATES SHOULD BE INCLUDED IN THE NARRATIVE. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTURBED AREAS WILL BE MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER).
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE CONFIRMATION OF LIME, FERTILIZER AND SEED APPLICATION AND RATES OF APPLICATION AT THE REQUEST OF THE GLOUCESTER SOIL CONSERVATION DISTRICT.
- ALL CRITICAL AREAS SUBJECT TO EROSION WILL RECEIVE A TEMPORARY OR PERMANENT SEEDING IN COMBINATION WITH STRAW MULCH AT A RATE OF 2 TONS PER ACRE, ACCORDING TO THE NEW JERSEY STANDARDS IMMEDIATELY FOLLOWING ROUGH GRADING.
- THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
- ALL SEDIMENTATION STRUCTURES WILL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
- A CRUSHED STONE, TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ACCESS EXISTS. THE STABILIZED PAD WILL BE INSTALLED ACCORDING TO THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS.
- ALL DRIVEWAYS MUST BE STABILIZED WITH 2 ½" CRUSHED STONE OR SUBBASE PRIOR TO INDIVIDUAL LOT CONSTRUCTION.
- PAVED AREAS MUST BE KEPT CLEAN AT ALL TIMES.
- ALL CATCH BASIN INLETS WILL BE PROTECTED ACCORDING TO THE CERTIFIED PLAN.
- ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED, AS REQUIRED, BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
- DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA. THE SEDIMENT FILTER SHOULD BE COMPOSED OF A SUITABLE SEDIMENT FILTER FABRIC. (SEE DETAIL). THE BASIN MUST BE DEWATERED TO NORMAL POOL WITHIN 10 DAYS OF THE DESIGN STORM.
- N.J.A.C. 7:24-39, ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE ALL PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK FOR THE PROJECT MUST BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE AS A PREREQUISITE TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
- MULCHING OR BIODEGRADABLE EROSION CONTROL MATTING IS REQUIRED ON ALL SEEDED AREAS TO INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED TO PROMOTE EARLIER VEGETATION COVER.
- OFFSITE SEDIMENT DISTURBANCE MAY REQUIRE ADDITIONAL CONTROL MEASURES TO BE DETERMINED BY THE EROSION CONTROL INSPECTOR.
- A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
- THE GLOUCESTER SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED 48 HOURS PRIOR TO ANY LAND DISTURBANCE.
- ANY CONVEYANCE OF THIS PROJECT PRIOR TO ITS COMPLETION WILL TRANSFER FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CERTIFIED PLAN TO ANY SUBSEQUENT OWNERS.
- IMMEDIATELY AFTER THE COMPLETION OF STRIPPING AND STOCKPILING OF CLEAN BACKFILL MATERIAL, THE STOCKPILE MUST BE STABILIZED ACCORDING TO THE STANDARD FOR TEMPORARY VEGETATIVE COVER. STABILIZE CLEAN BACKFILL MATERIAL STOCKPILE WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE APPLICATION AND ESTABLISHMENT OF TEMPORARY SEEDING. ALL SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY AND THE BASE MUST BE PROTECTED WITH A SEDIMENT BARRIER.
- ANY CHANGES TO THE SITE PLAN WILL REQUIRE THE SUBMISSION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN TO THE GLOUCESTER SOIL CONSERVATION DISTRICT. THE REVISED PLAN MUST BE IN ACCORDANCE WITH THE CURRENT NEW JERSEY STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.
- METHODS FOR THE MANAGEMENT OF HIGH ACID PRODUCING SOILS SHALL BE IN ACCORDANCE WITH THE STANDARDS. HIGH ACID PRODUCING SOILS ARE THOSE FOUND TO CONTAIN IRON SULFIDES OR HAVE A pH OF 4 OR LESS.
- TEMPORARY AND PERMANENT SEEDING MEASURES MUST BE APPLIED ACCORDING TO THE NEW JERSEY STANDARDS, AND MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER).
- MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE DISTRICT.
- DUST IS TO BE CONTROLLED BY AN APPROVED METHOD ACCORDING TO THE NEW JERSEY STANDARDS AND MAY INCLUDE WATERING WITH A SOLUTION OF CALCIUM CHLORIDE AND WATER.
- ADJOINING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS ON THE PROPOSED SITE.
- USE STAGED CONSTRUCTION METHODS TO MINIMIZE EXPOSED SURFACES, WHERE APPLICABLE.
- ALL VEGETATIVE MATERIAL SHALL BE SELECTED IN ACCORDANCE WITH AMERICAN STANDARDS FOR NURSERY STOCK OF THE AMERICAN ASSOCIATION OF THE NURSERYMAN AND IN ACCORDANCE WITH THE NEW JERSEY STANDARDS.
- NATURAL VEGETATION AND SPECIES SHALL BE RETAINED WHERE SPECIFIED ON THE LANDSCAPING PLAN.
- THE SOIL EROSION INSPECTOR MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DIRECTED BY THE DISTRICT INSPECTOR.



- NOTES:
- FILTER SOCK MATERIALS AND CONSTRUCTION TO MEET THE REQUIREMENTS OF THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", STANDARD FOR SEDIMENT BARRIERS, SECTION A (GENERAL REQUIREMENTS) AND SECTION B (BALE BARRIER).
 - FILTER SOCKS MUST BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PRODUCT SHALL BE SILT-SOCKTM AS MANUFACTURED BY FILTER-SOCKTM OR APPROVED EQUIVALENT.
 - IN NO CASE SHALL A FILTER SOCK BE INSTALLED ACROSS AN OPEN CHANNEL TO FORM A "CHECK DAM".
 - COMPOST MATERIAL TO BE DISPERSED ON SITE, AT A LOCATION DETERMINED BY ENGINEER.



BARRY J. SUTHERLAND, P.E.
 NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland

3/1/17		Date
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0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

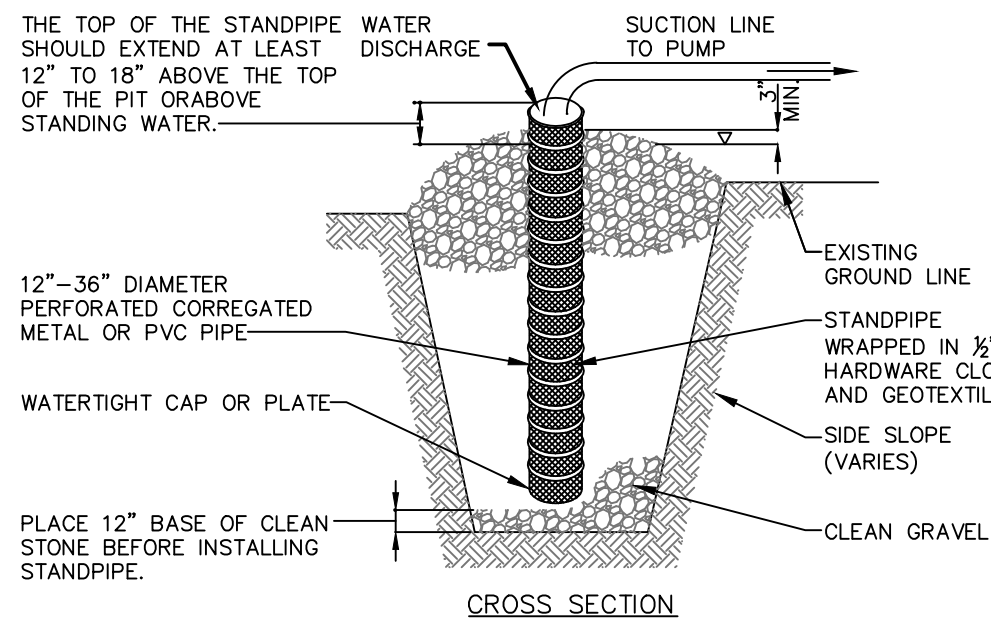
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 PHONE NO. (908) 988-1700
 FAX NO. (973) 564-6442
 Certificate of Authorization #24GA28047100

SHIELDALLOY
 METALLURGICAL CORPORATION
 BOROUGH OF NEWFIELD/CITY OF VINELAND
 BURLINGTON COUNTY/GLOUCESTER COUNTY
 NEW JERSEY

TITLE:
 SOIL EROSION AND SEDIMENT
 DETAILS SHEET 1 OF 3

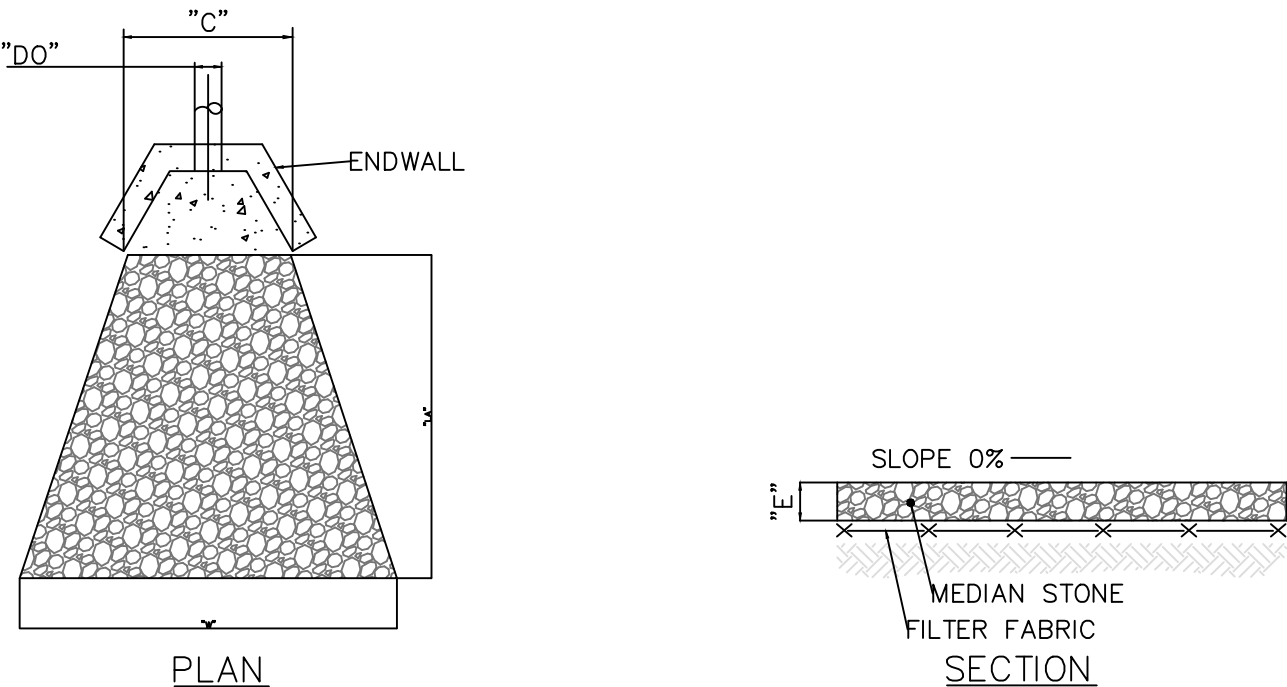
Project No.: 112434	Scale: NOT TO SCALE
Drawn By: SJ	Date: JULY 2016
Checked By: BJS/PJH	C-118



- CONSTRUCTION SPECIFICATIONS**
- PIT DIMENSIONS ARE VARIABLE, WITH THE MINIMUM DIAMETER BEING 2 TIMES THE STANDPIPE DIAMETER.
 - THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12" TO 24" DIAMETER CORRUGATED OR PVC PIPE, THEN WRAPPING WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE PERFORATIONS SHALL BE 1/2" x 6" SLITS OR 1" DIAMETER HOLES.
 - A BASE FILTER MATERIAL CONSISTING OF CLEAN GRAVEL OR ASTM C 33 STONE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH THE SAME FILTER MATERIAL.
 - THE STANDPIPE SHOULD EXTEND 12" TO 18" ABOVE THE LIP OF THE PIT OR THE RISER CREST ELEVATION (BASIN DEWATERING ONLY) AND THE FILTER MATERIAL SHOULD EXTEND 3" MINIMUM ABOVE THE ANTICIPATED STANDING WATER ELEVATION.
 - ± WATER SURFACE ELEVATION.
 - CONTRACTOR MAY OFFER ALTERNATIVE SUMP PIT DESIGN, WHICH MUST BE IN ACCORDANCE WITH THE NEW JERSEY SOIL EROSION AND SEDIMENT CONTROL STANDARDS, AND PRE-APPROVED BY GLOUCESTER SOIL CONSERVATION DISTRICT AND THE ENGINEER PRIOR TO CONSTRUCTION.

TEMPORARY SUMP DURING CONSTRUCTION

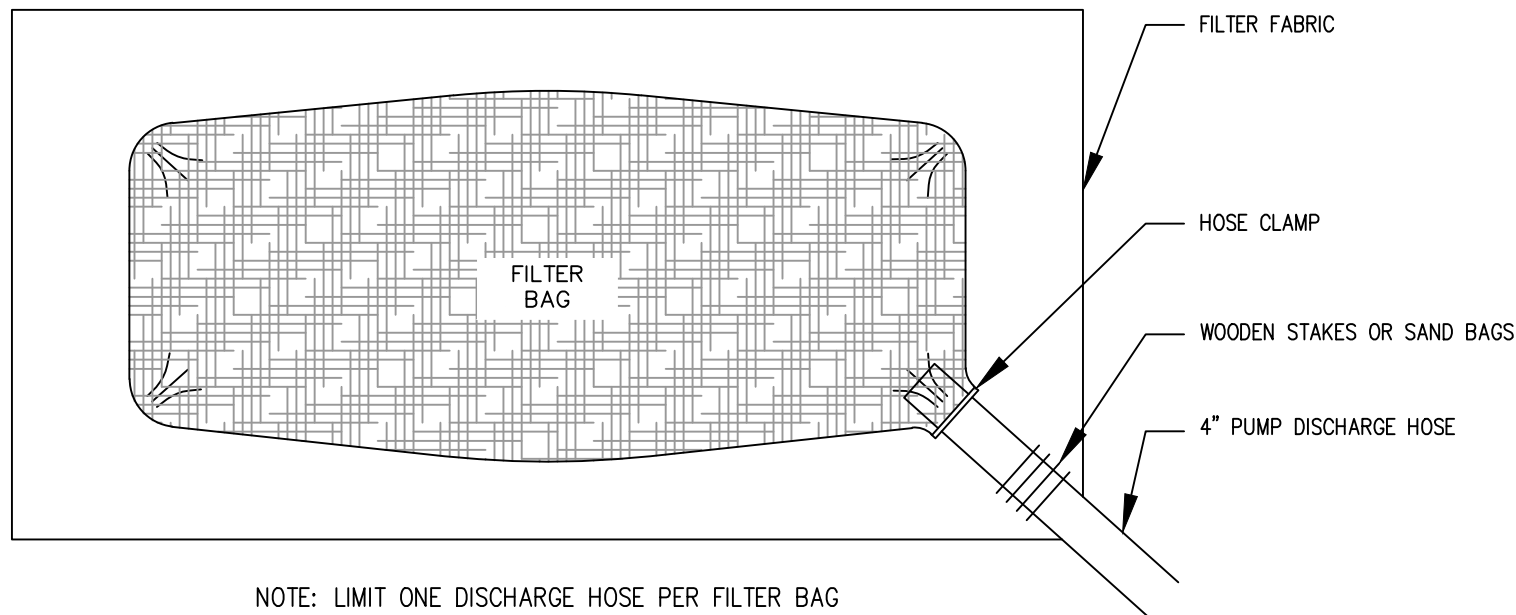
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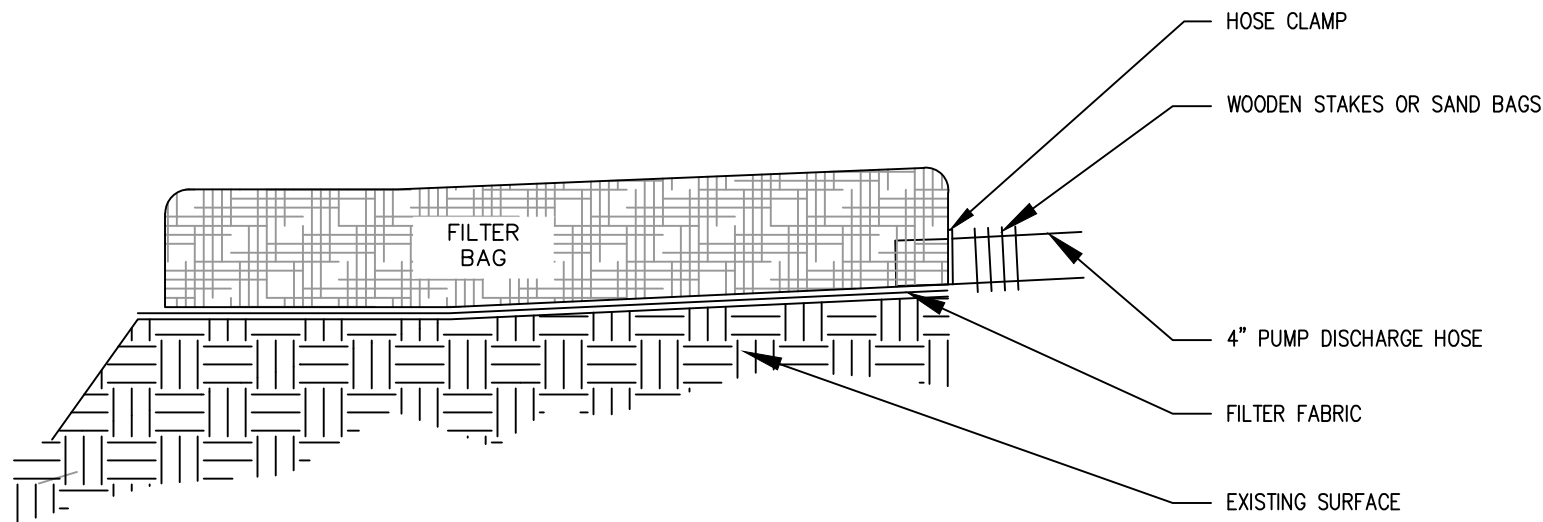
- NOTES:**
- SLOPE OF RIP-RAP SHALL BE 0%.
 - SIDE SLOPES SHALL BE 2:1 OR FLATTER.
 - THERE SHALL BE NO OVERFALL AT THE END OF THE APRON OR AT THE END OF THE CULVERT.
 - WHERE THERE IS A WELL DEFINED CHANNEL DOWNSTREAM OF THE APRON, THE BOTTOM WIDTH OF THE APRON SHALL BE AT LEAST EQUAL TO THE BOTTOM WIDTH OF THE CHANNEL. THE STRUCTURAL LINING SHALL EXTEND AT LEAST ONE FOOT ABOVE THE TAILWATER ELEVATION BUT NO LOWER THAN TWO-THIRDS OF THE VERTICAL CONDUIT DIMENSION ABOVE THE CONDUIT INVERT.
 - THERE SHALL BE NO BENDS OR CURVES AT THE INTERSECTION OF THE CONDUIT AND APRON.
 - FIFTY PERCENT, BY WEIGHT OF THE RIP-RAP MIXTURE SHALL BE SMALLER THAN MEDIAN STONE SIZE DESIGNATED AS D50. THE LARGEST STONE SIZE IN THE MIXTURE SHALL BE 1.5 TIMES THE D SIZE. THE RIP-RAP SHALL BE REASONABLY WELL GRADED.
 - FILTER FABRIC SHALL BE PROVIDED UNDER RIP-RAP LINING. FABRIC SHALL BE MIRAFI 700X OR APPROVED EQUAL.

CONDUIT OUTLET PROTECTION DETAIL

N.T.S.



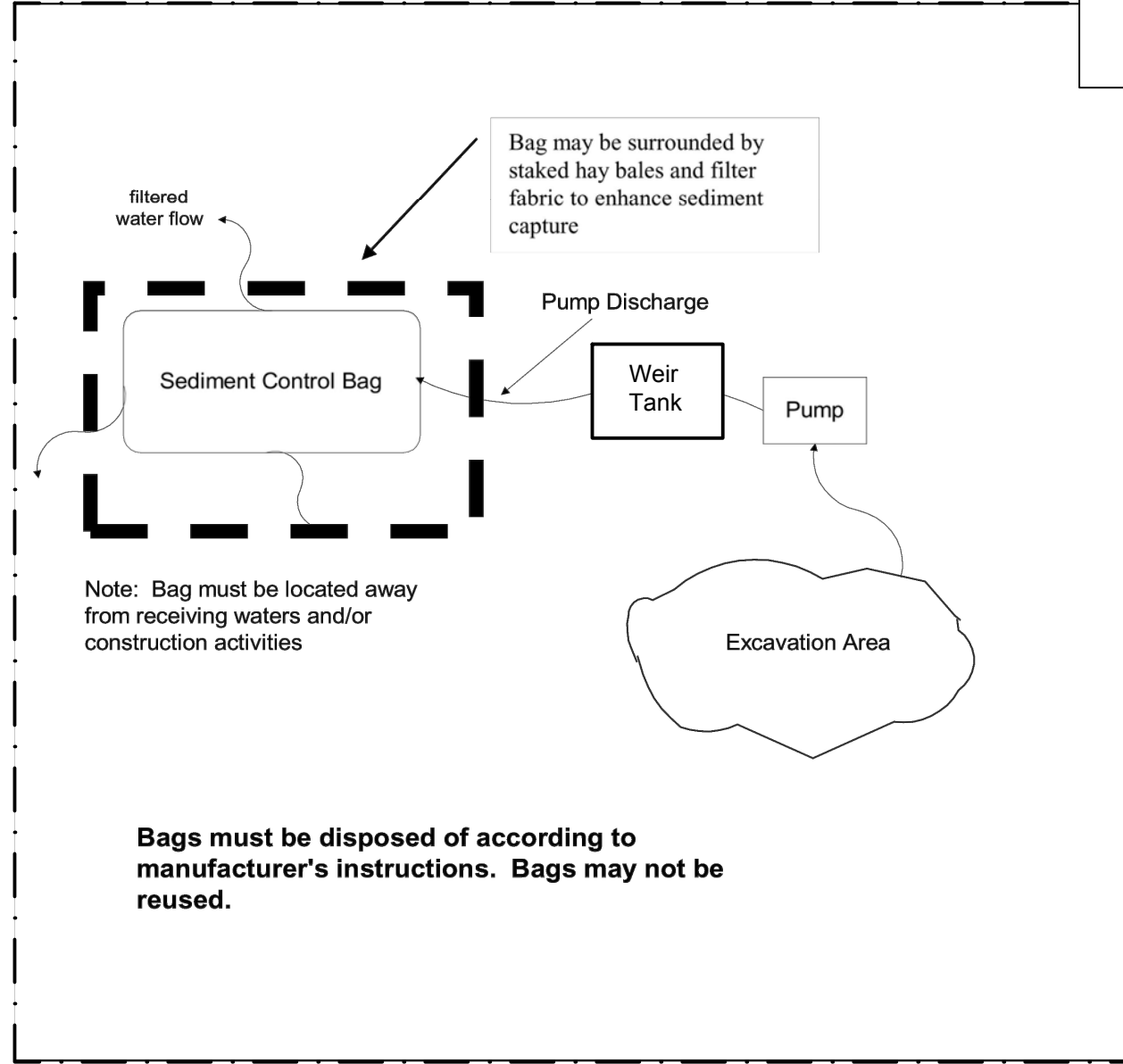
PLAN VIEW



SECTION VIEW
TYPICAL FILTER BAG DETAIL
N.T.S.

SEDIMENT FILTER BAG DETAILS

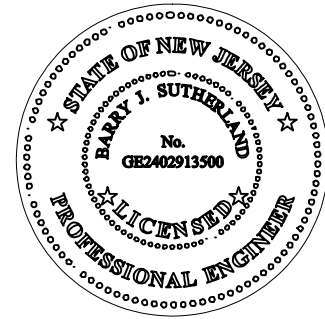
N.T.S.



SEDIMENT FILTER BAG SPECIFICATIONS

- BAGS SHALL BE LOCATED WITHIN AREAS DESIGNATED ON PLANS, WITH PROVISION FOR EASE OF CLEAN-OUT AND DISPOSAL OF THE TRAPPED SEDIMENT AND TO MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND PEDESTRIAN TRAFFIC. BAGS SHALL NOT BE PLACED DIRECTLY INTO RECEIVING WATERS.
- BAGS SHALL BE PLACED ON PERMEABLE OR POROUS (SUCH AS HAY BALES OR GRAVEL) LEVELING BED TO FACILITATE DEWATERING.
- BAG SIZING: BAG SIZES SHALL BE SELECTED BASED UPON PUMPING FLOW RATES SHOWN ON PLANS, AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- REMOVE BAGS AS SOON AS POSSIBLE AFTER COMPLETION OF DEWATERING ACTIVITIES. BAGS SHALL BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS. BAGS MAY NOT BE REUSED.

SEQUENCE OF CONSTRUCTION		
<p>PHASE 1A</p> <ol style="list-style-type: none">INSTALL TEMPORARY CONSTRUCTION FENCE, STOCKPILE AREAS 1 AND 2, AND SOIL EROSION CONTROLS FOR PHASES 1A, 1B AND 1C AND PHASE 1D (STOCKPILE AREA 1).CONSTRUCT CONSTRUCTION ACCESS ROAD FOR PHASE 1A.INSTALL TEMPORARY DIVERSION STRUCTURE NO. 1.INSTALL PHASE 1A BYPASS PUMPS NO. 1, 2 AND 3.INSTALL PHASE 1 TREATMENT SYSTEM.INSTALL PHASE 1A DEWATERING PUMPS NO. 1.EXCAVATE PHASE 1A (EST. 1,400 CY) AND TRANSPORT TO STOCKPILE AREA NO. 1.SAMPLE AND LABORATORY TEST 1A STOCKPILE.BACKFILL WITH CLEAN FILL MATERIAL AND RESTORE PHASE 1A STREAM AND UPLAND AREA.REMOVE PHASE 1A BYPASS AND DEWATERING PUMPS NO. 1.REMOVE TEMPORARY DIVERSION STRUCTURE NO. 1.LOAD OUT AND DISPOSE OF PHASE 1A SEDIMENT FROM STOCKPILE AREA NO. 1.	<p>PHASE 1D</p> <ol style="list-style-type: none">REMOVE CONCRETE BARRIERS AND DISPOSE HDPE LINER USED FOR STOCKPILE 1.INSTALL GEOTEXTILE FABRIC.INSTALL 4-INCH THICK DGA AND COMPACT.INSTALL 4-INCH THICK BASE COURSE (MIX 1-2) AND COMPACT.INSTALL 2-INCH THICK SURFACE COURSE (MIX 1-5) AND COMPACT.SWEEP CAP AREA AND STOCKPILE AREA FOR CLEAN FILL AND REMOVE SOIL EROSION CONTROLS.	<p>PHASE 4</p> <ol style="list-style-type: none">SAMPLE AND LABORATORY TEST PHASE 4 SEDIMENTS TO PRECLASSIFY MATERIAL.INSTALL TEMPORARY CONSTRUCTION FENCE AND SOIL EROSION CONTROLS FOR PHASE 4.CONSTRUCT CONSTRUCTION ACCESS ROAD AND EQUIPMENT PAD PHASE 4.RELOCATE TREATMENT SYSTEM FROM PHASE 3 TO PHASE 4.INSTALL TEMPORARY DIVERSION STRUCTURE NO. 7.INSTALL PHASE 4 BYPASS PUMP(S) NO. 1.INSTALL PHASE 4 DEWATERING PUMP(S) NO. 1.EXCAVATE PHASE 4 (EST. 1,900 CY) AND DIRECT LOAD TO APPROVED DISPOSAL FACILITY.BACKFILL AND RESTORE PHASE 4 STREAM AND UPLAND AREA.REMOVE PHASE 4 BYPASS PUMP(S) NO. 1 AND PHASE 4 DEWATERING PUMP(S) NO. 1.REMOVE TEMPORARY DIVERSION STRUCTURE NO. 7.REMOVE TREATMENT SYSTEM.REMOVE PHASE 4 CONSTRUCTION ACCESS ROADS AND EQUIPMENT PAD AND RESTORE AREAS.
<p>PHASE 1B</p> <ol style="list-style-type: none">CONSTRUCT CONSTRUCTION ACCESS ROAD FOR PHASE 1B.INSTALL TEMPORARY DIVERSION STRUCTURE NO. 2.INSTALL PHASE 1B BYPASS PUMP(S) NO. 4.INSTALL PHASE 1B DEWATERING PUMPS NO. 2.EXCAVATE PHASE 1B (EST. 1,400 CY) AND TRANSPORT TO STOCKPILE AREA NO. 1.SAMPLE AND LABORATORY TEST 1B STOCKPILE.BACKFILL AND RESTORE PHASE 1B STREAM AND UPLAND AREA.REMOVE BYPASS PHASE 1B BYPASS PUMP(S) NO. 4 AND DEWATERING PUMPS NO. 2.REMOVE TEMPORARY DIVERSION STRUCTURE NO. 2.LOAD OUT AND DISPOSE OF PHASE 1B SEDIMENT FROM STOCKPILE AREA NO. 1.	<p>PHASE 2</p> <ol style="list-style-type: none">SAMPLE AND LABORATORY TEST PHASE 2 SEDIMENTS TO PRECLASSIFY MATERIAL.INSTALL TEMPORARY CONSTRUCTION FENCE AND SOIL EROSION CONTROLS FOR PHASE 2.CONSTRUCT CONSTRUCTION ACCESS ROAD AND EQUIPMENT PAD FOR PHASE 2.RELOCATE TREATMENT SYSTEM FROM PHASE 1 TO PHASE 2.INSTALL TEMPORARY DIVERSION STRUCTURE NO. 5.INSTALL PHASE 2 BYPASS PUMP(S) NO. 1.INSTALL PHASE 2 DEWATERING PUMPS NO. 1.EXCAVATE PHASE 2 (EST. 440 CY) AND TRANSPORT TO APPROVED DISPOSAL FACILITY.SAMPLE AND LABORATORY TEST PHASE 2 STOCKPILE.BACKFILL AND RESTORE PHASE 2 STREAM AND UPLAND AREA.REMOVE PHASE 2 BYPASS PUMP NO. 1 AND PHASE 2 DEWATERING PUMPS NO. 1.REMOVE TEMPORARY DIVERSION STRUCTURE NO. 5.REMOVE TREATMENT SYSTEM.REMOVE PHASE 2 CONSTRUCTION ACCESS ROADS AND EQUIPMENT PAD AND RESTORE AREAS.	
<p>PHASE 1C</p> <ol style="list-style-type: none">CONSTRUCT CONSTRUCTION ACCESS ROAD FOR PHASE 1C.INSTALL TEMPORARY DIVERSION STRUCTURES NO. 3 AND 4, AND TEMPORARY FLOW DIVERSION PLUG FOR IMPOUNDMENT.INSTALL PHASE 1C BYPASS PUMPS NO. 5 AND 6.INSTALL PHASE 1C DEWATERING PUMPS NO. 3.EXCAVATE PHASE 1C (EST. 1,900 CY) AND TRANSPORT TO STOCKPILE AREA NO. 1.SAMPLE AND LABORATORY TEST 1C STOCKPILE.BACKFILL AND RESTORE PHASE 1C STREAM AND UPLAND AREA.REMOVE BYPASS PHASE 1C PUMP NO. 5 AND 6 AND DEWATERING PUMPS NO. 3.REMOVE TEMPORARY DIVERSION STRUCTURES NO. 3 AND 4.LOAD OUT AND DISPOSE OF PHASE 1C SEDIMENT FROM STOCKPILE AREA NO. 1.REMOVE PHASE 1 CONSTRUCTION ACCESS ROADS AND RESTORE AREAS.	<p>PHASE 3</p> <ol style="list-style-type: none">INSTALL TEMPORARY CONSTRUCTION FENCE AND SOIL EROSION CONTROLS FOR PHASE 3.CONSTRUCT CONSTRUCTION ACCESS ROADS AND EQUIPMENT PAD PHASE 3.RELOCATE TREATMENT SYSTEM FROM PHASE 2 TO PHASE 3.INSTALL TEMPORARY DIVERSION STRUCTURE NO. 6.INSTALL PHASE 3 BYPASS PUMPS NO. 1.INSTALL PHASE 3 DEWATERING PUMPS NO. 1.EXCAVATE PHASE 3 (EST. 2,100 CY) AND TRANSPORT TO STOCKPILE AREA NO. 3.SAMPLE AND LABORATORY TEST PHASE 3 STOCKPILE.BACKFILL AND RESTORE PHASE 3 STREAM AND UPLAND AREA.REMOVE PHASE 3 BYPASS PUMPS NO. 1 AND DEWATERING PUMPS NO. 1.REMOVE TEMPORARY DIVERSION STRUCTURE NO. 6.LOAD OUT AND DISPOSE OF PHASE 3 SEDIMENT FROM STOCKPILE AREAS NO. 3.REMOVE TREATMENT SYSTEM.REMOVE PHASE 3 CONSTRUCTION ACCESS ROADS AND EQUIPMENT PAD AND RESTORE AREAS.	
DETAILED SEQUENCE OF CONSTRUCTION		



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NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland

NO.		REVISION	DATE
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1		ISSUED FOR 90% DESIGN REVIEW	1/3/17

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METALLURGICAL CORPORATION**

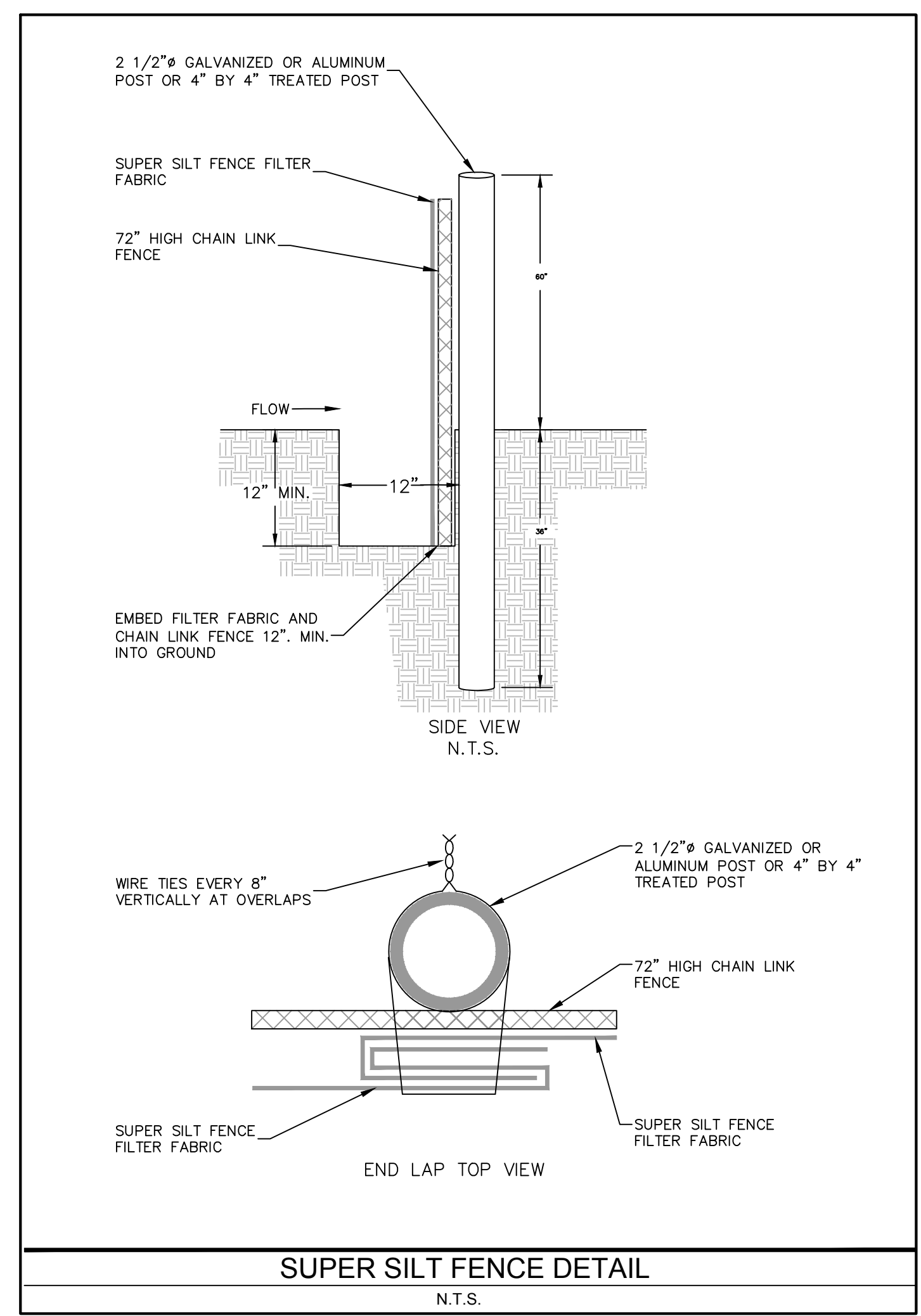
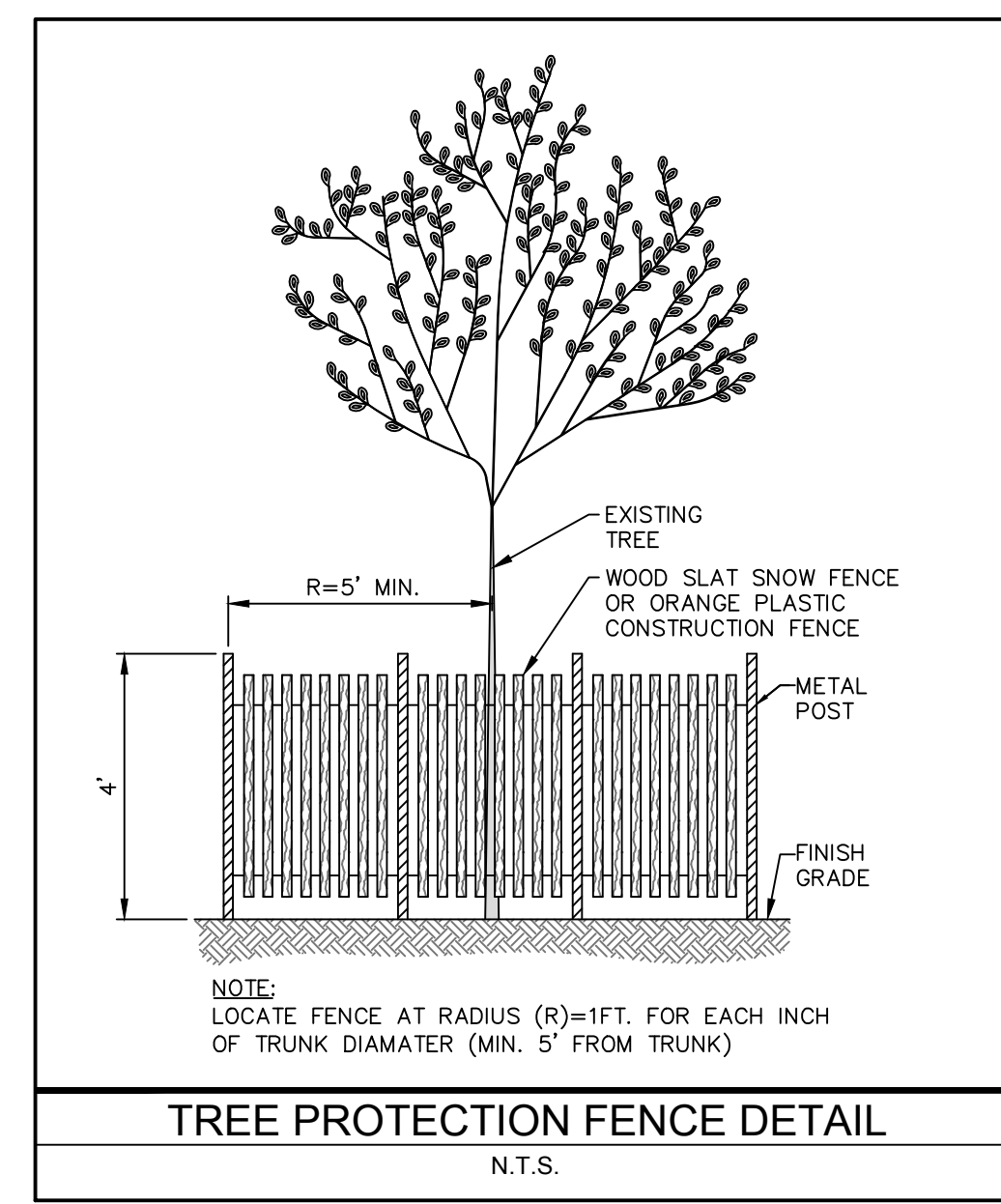
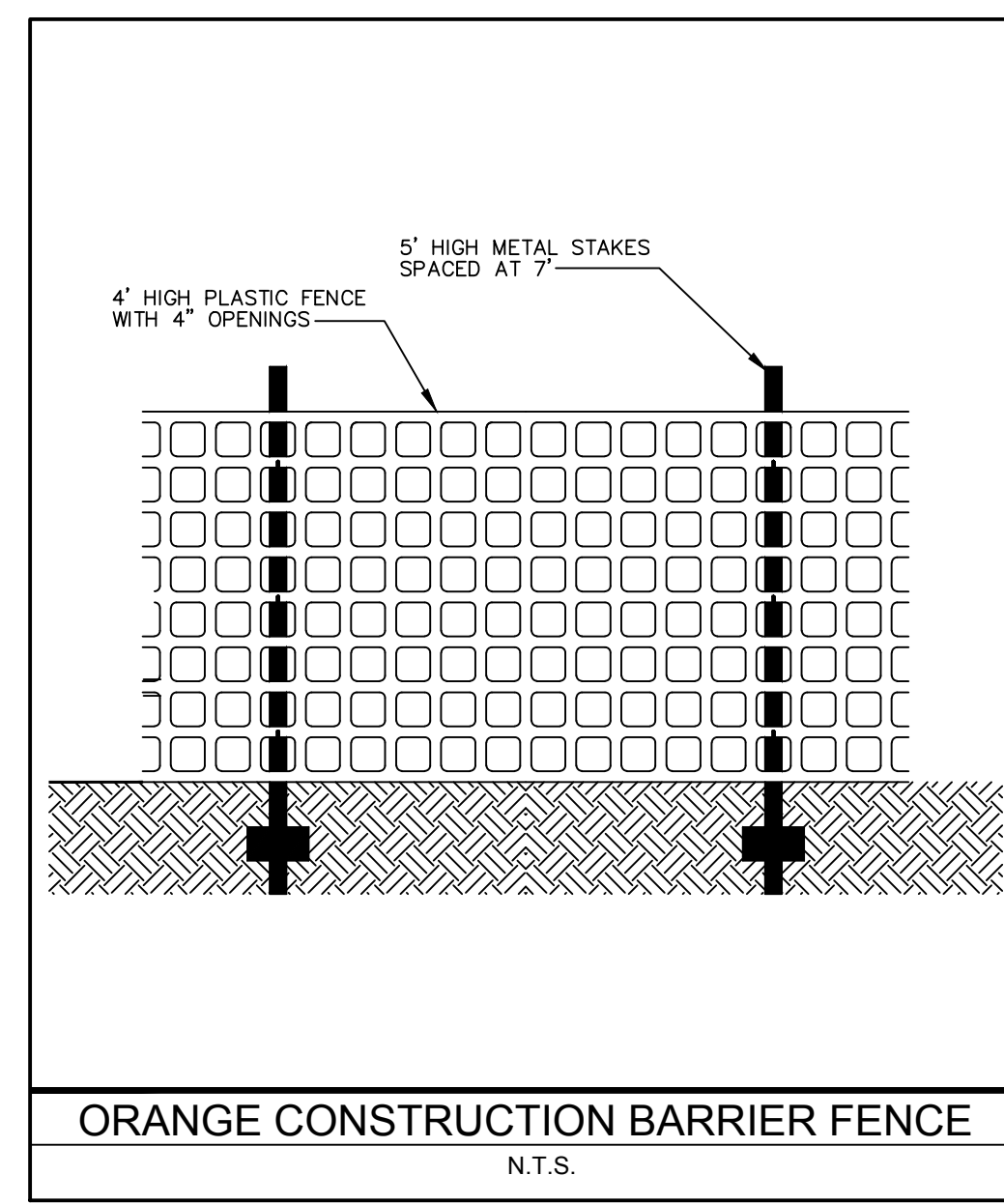
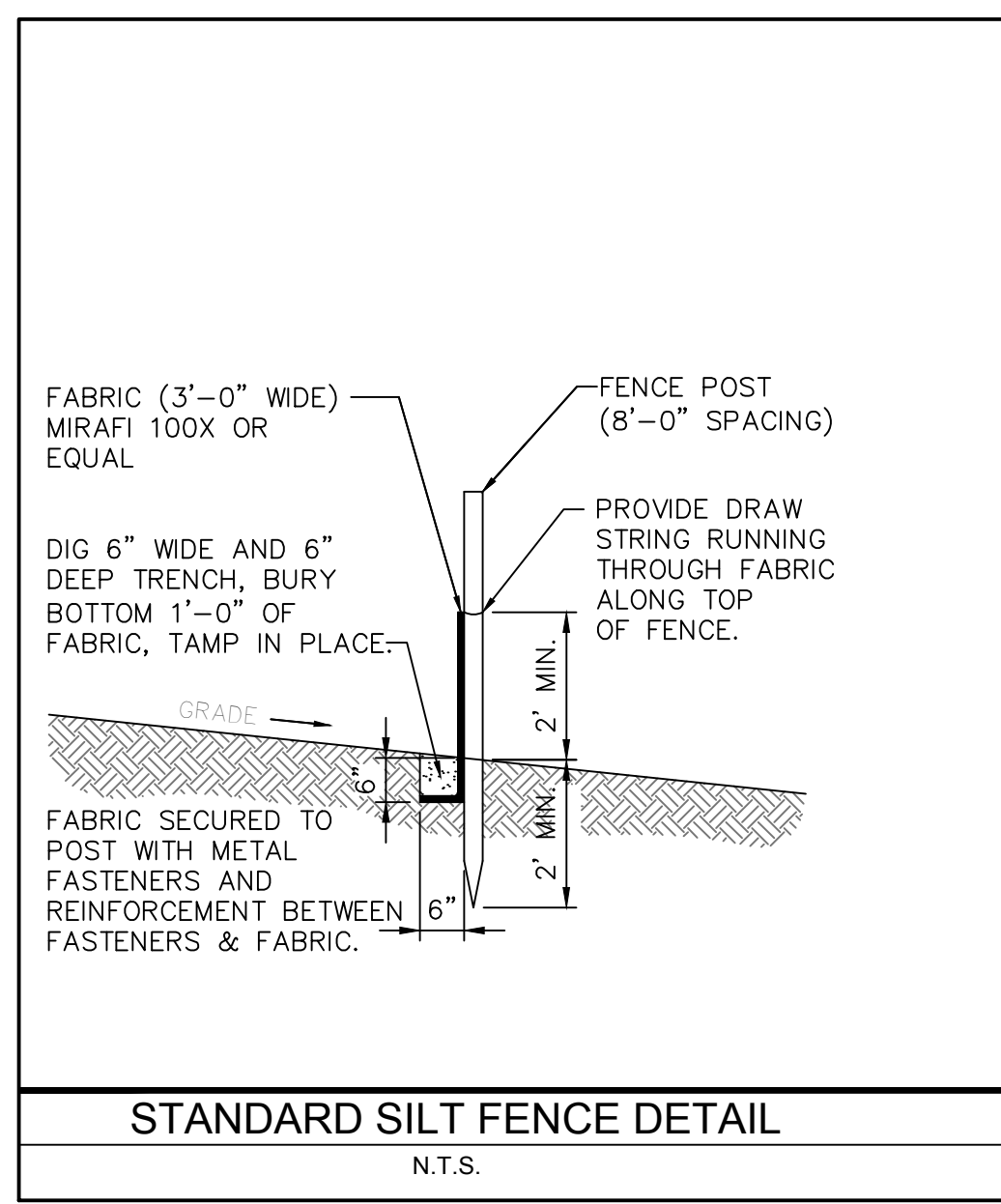
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**SOIL EROSION AND SEDIMENT
DETAILS SHEET 2 OF 3**

Project No.: 112434	Scale: NOT TO SCALE
Drawn By: SJ	Date: JULY 2016
Checked By: BJS/PJH	C-119

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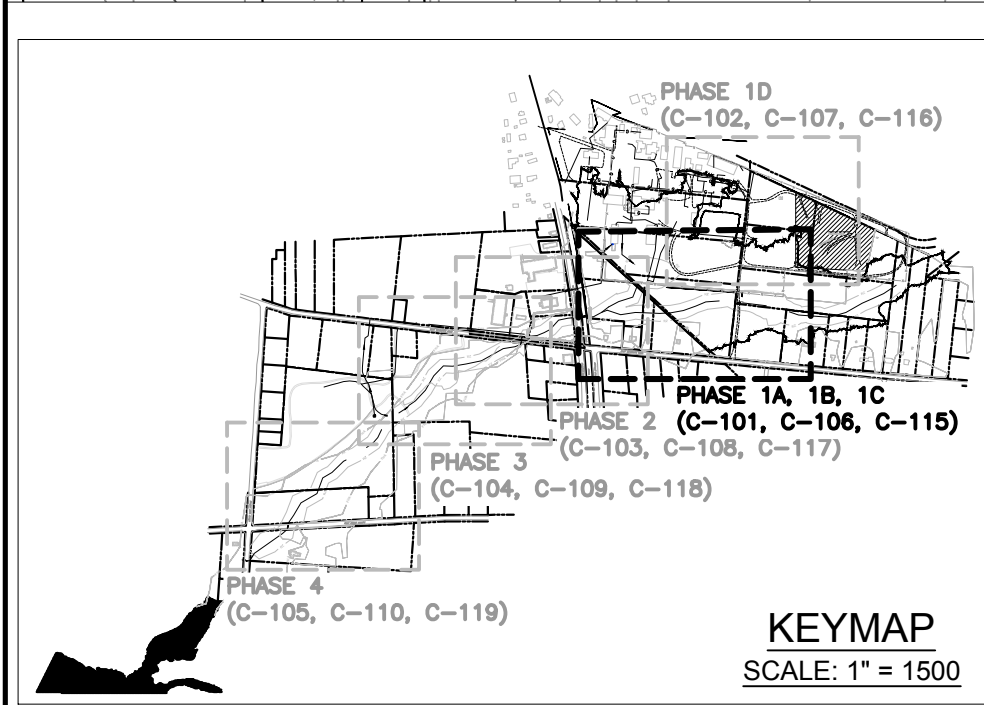
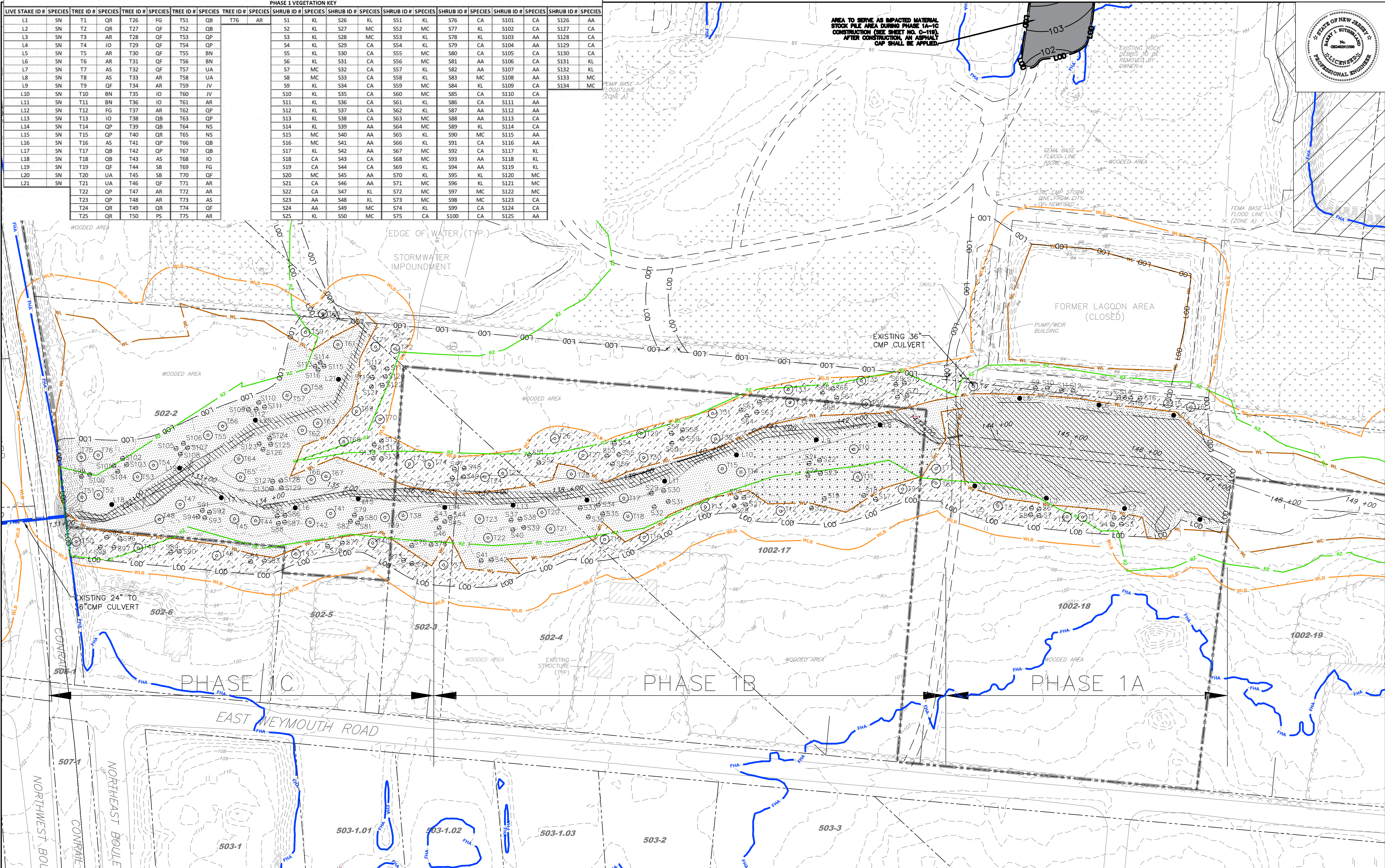
**SHIELDALLOY
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BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
SOIL EROSION AND SEDIMENT
DETAILS SHEET 3 OF 3

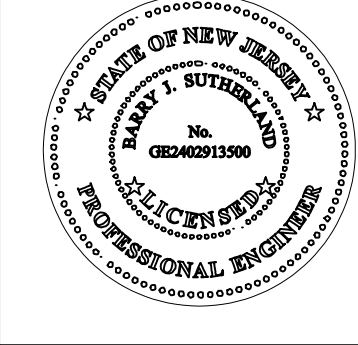
Project No.: 112434	Scale: NOT TO SCALE
Drawn By: SJ	Date: JULY 2016
Checked By: BJS/PJH	C-120

PHASE 1 VEGETATION KEY																									
LIVE STAKE ID #	SPECIES	TREE ID #	SPECIES	TREE ID #	SPECIES	TREE ID #	SPECIES	TREE ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES
L1	SN	T1	QR	T26	FG	T51	QB	T76	AR	S1	KL	S26	KL	S51	KL	S76	CA	S101	CA	S126	AA				
L2	SN	T2	QR	T27	QF	T52	QB			S2	KL	S27	MC	S52	MC	S77	KL	S77	KL	S102	CA	S127	CA		
L3	SN	T3	AR	T28	QF	T53	QP			S3	KL	S28	MC	S53	KL	S78	KL	S103	AA	S128	CA				
L4	SN	T4	IO	T29	QF	T54	QP			S4	KL	S29	CA	S54	KL	S79	CA	S104	AA	S129	CA				
L5	SN	T5	AR	T30	QF	T55	BN			S5	KL	S30	CA	S55	MC	S80	CA	S105	CA	S130	CA				
L6	SN	T6	AR	T31	QF	T56	BN			S6	KL	S31	CA	S56	MC	S81	AA	S106	CA	S131	KL				
L7	SN	T7	AS	T32	QF	T57	UA			S7	MC	S32	CA	S57	KL	S82	AA	S107	AA	S132	KL				
L8	SN	T8	AS	T33	AR	T58	UA			S8	MC	S33	CA	S58	KL	S83	MC	S108	AA	S133	MC				
L9	SN	T9	QF	T34	AR	T59	JV			S9	KL	S34	CA	S59	MC	S84	KL	S109	CA	S134	MC				
L10	SN	T10	BN	T35	IO	T60	JV			S10	KL	S35	CA	S60	MC	S85	CA	S110	CA						
L11	SN	T11	BN	T36	IO	T61	AR			S11	KL	S36	CA	S61	KL	S86	CA	S111	AA						
L12	SN	T12	FG	T37	AR	T62	QP			S12	KL	S37	CA	S62	KL	S87	AA	S112	AA						
L13	SN	T13	IO	T38	QB	T63	QP			S13	KL	S38	CA	S63	MC	S88	AA	S113	CA						
L14	SN	T14	QP	T39	QB	T64	NS			S14	KL	S39	AA	S64	MC	S89	KL	S114	CA						
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L21	SN	T21	UA	T46	QF	T71	AR			S21	CA	S46	AA	S71	MC	S96	KL	S121	MC						
		T22	QP	T47	AR	T72	AR			S22	CA	S47	KL	S72	MC	S97	MC	S122	MC						
		T23	QP	T48	AR	T73	AS			S23	AA	S48	KL	S73	MC	S98	MC	S123	CA						
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		T25	QR	T50	PS	T75	AR			S25	KL	S50	MC	S75	CA	S100	CA	S125	AA						



LEGEND			
---	SITE BOUNDARY LINE	WLB	WETLANDS BUFFER
---	FIELD SURVEYED STREAM CENTERLINE	WL	WETLANDS LIMIT
---	TAX LOT LINE PER TAX MAP	---	EXISTING DIRT ROAD
---	EDGE OF WATER	ST	EXISTING STORMWATER PIPE
---	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)	---	GW RECOVERY LINE
---	FEMA ZONE A DESIGNATED APPROXIMATE 100-YEAR FLOODPLAIN (NO BASE FLOOD ELEVATION DETERMINED BY FEMA)	X	EXISTING FENCE LINE
---	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT	---	PREVIOUSLY CAPPED AREA
---	EXISTING TOP OF BANK	505-B	BLOCK # - LOT # (PER TAX MAP)
		---	ELEVATION CONTOUR PER TRC SURVEY DATA
		---	ELEVATION CONTOUR PER SUPPLEMENTAL DEW DATA
			OPEN WATER/STREAM CHANNEL RESTORATION AREA
			WETLAND RESTORATION AREA
			TRANSITION/UPLAND RESTORATION AREA
			TREES OF SIGNIFICANT ECOLOGICAL VALUE
			PROPOSED TREE TO BE PLANTED
			PROPOSED SHRUB TO BE PLANTED
			PROPOSED LIVE STAKES TO BE PLANTED
			PROPOSED PLUGS TO BE PLANTED

- NOTES:
1. PROPOSED ACCESS ROADWAYS AND STAGING AREAS TO BE RESTORED TO EXISTING CONDITIONS
 2. FOR RESTORATION PLANTING DETAILS SEE SHEETS C-125 & C-126
 3. THE EXTENT OF RESTORATION PLANTINGS WILL COINCIDE WITH THE ANTICIPATED RATIOS, FOR THE PHASE, OF PLANTINGS PER ACRE. REGARDLESS OF THE DISTURBANCE AREA, THE PLANTING DENSITY WILL PREVAIL TO THE EXTENT POSSIBLE.
 4. ACTUAL POSITION/PROXIMITY OF PLANTINGS MAY BE ADJUSTED BASED ON FIELD CONDITIONS



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Barry J. Sutherland

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1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

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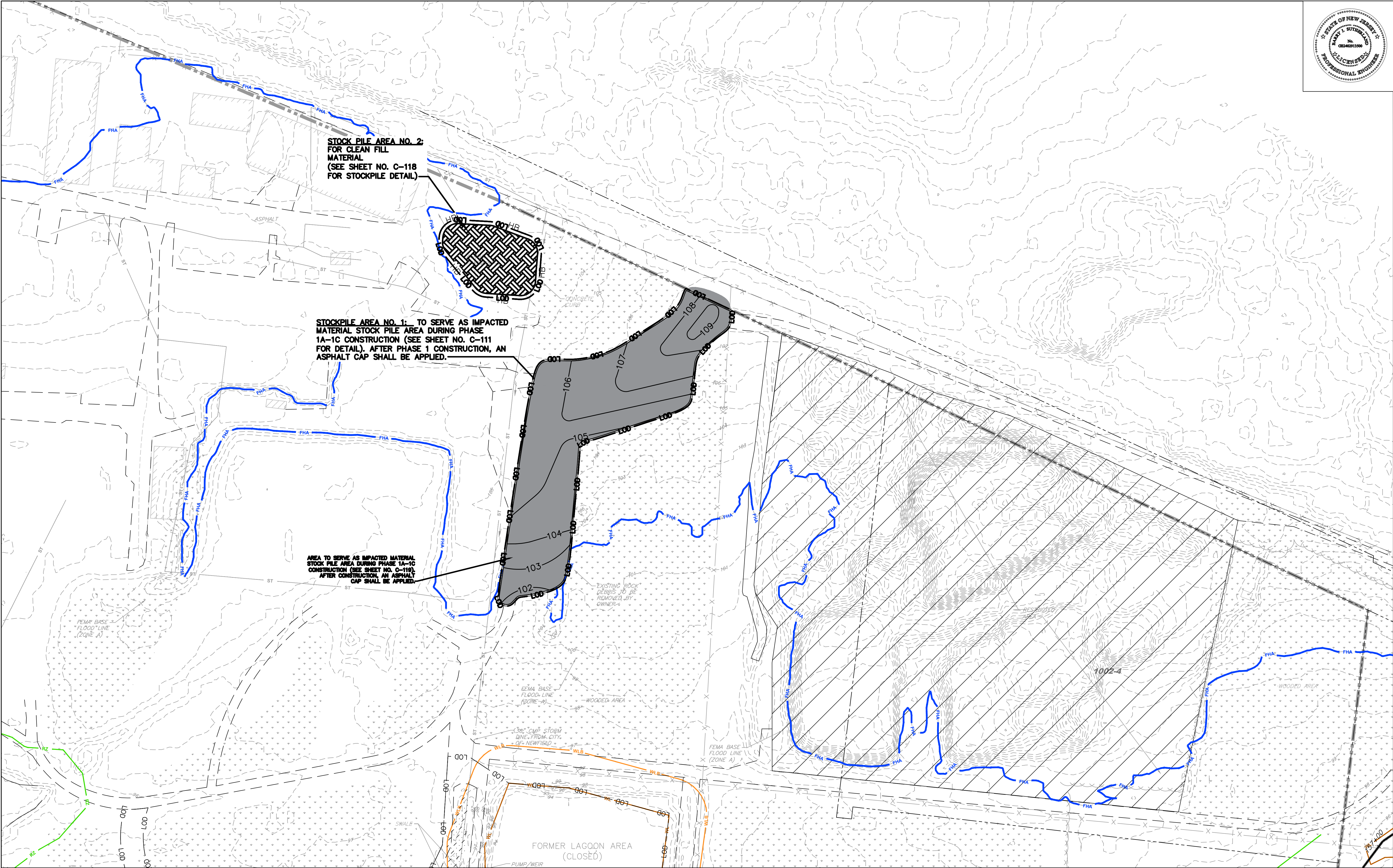


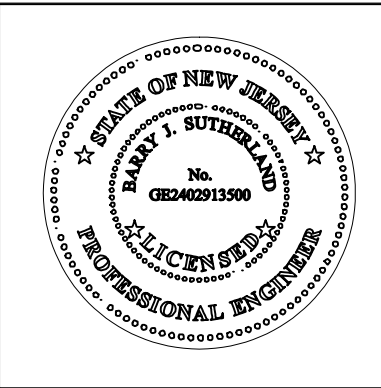
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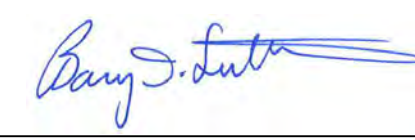
TITLE:
**SITE RESTORATION PLAN
PHASE 1A, 1B, 1C**

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS	C-121





BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500



3/1/17
Date


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SHIELDALLOY
METALLURGICAL CORPORATION

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**SITE RESTORATION PLAN
PHASE 1D**

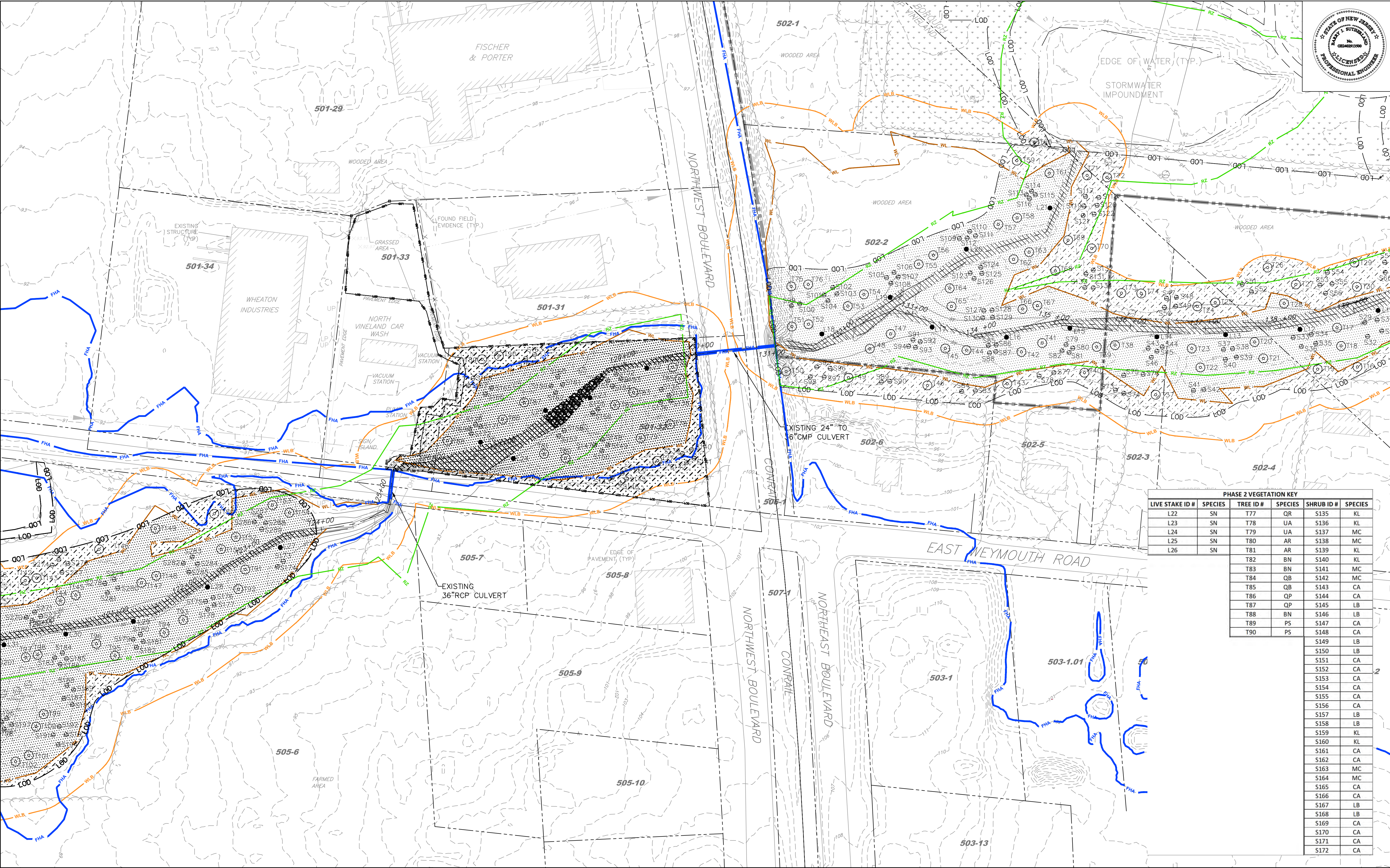
Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS	C-122

LEGEND			
	SITE BOUNDARY LINE		WLB
	FIELD SURVEYED STREAM CENTERLINE		WL
	TAX LOT LINE PER TAX MAP		ST
	EDGE OF WATER		GW RECOVERY LINE
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		EXISTING FENCE LINE
	FEMA ZONE 2 (C-101, C-106, C-115) (C-103, C-108, C-117)		PREVIOUSLY CAPPED AREA
	FEMA ZONE 3 (C-104, C-109, C-118)		505-B
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		193
	EXISTING TOP OF BANK		193
	TRANSITION/UPLAND RESTORATION AREA		PROPOSED STOCKPILE AREA
	PROPOSED (SESC) LIMIT OF DISTURBANCE		PROPOSED HAY BALES

NOTES:

1. PROPOSED ACCESS ROADWAYS AND STAGING AREAS TO BE RESTORED TO EXISTING CONDITIONS
2. FOR RESTORATION PLANTING DETAILS SEE SHEETS C-125 & C-126.

FILE: W:\RAWN PROJECT FOLDERS\2501-3000\2710\DOCUMENTS (WIP)\REPORTS (WIP)\2015 012\DWG\FIGURES\122434_SRESP.DWG. DATE: 02/25/2017 07:33:02PM



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3/1/17

Date

NO.	REVISION	DATE
0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF TRC ENGINEERS, INC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CALL 1-800-272-1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

THIS PLAN IS NOT FOR CONSTRUCTION PURPOSES.

THIS PLAN IS ISSUED FOR REGULATORY REVIEW PURPOSES ONLY.

THIS PLAN IS NOT VALID UNLESS A RAISED SEAL IS AFFIXED HERETO.

PHASE 2 VEGETATION KEY

LIVE STAKE ID #	SPECIES	TREE ID #	SPECIES	SHRUB ID #	SPECIES
L22	SN	T77	QR	S135	KL
L23	SN	T78	UA	S136	KL
L24	SN	T79	UA	S137	MC
L25	SN	T80	AR	S138	MC
L26	SN	T81	AR	S139	KL
		T82	BN	S140	KL
		T83	BN	S141	MC
		T84	QB	S142	MC
		T85	QB	S143	CA
		T86	QP	S144	CA
		T87	QP	S145	LB
		T88	BN	S146	LB
		T89	PS	S147	CA
		T90	PS	S148	CA
				S149	LB
				S150	LB
				S151	CA
				S152	CA
				S153	CA
				S154	CA
				S155	CA
				S156	CA
				S157	LB
				S158	LB
				S159	KL
				S160	KL
				S161	CA
				S162	CA
				S163	MC
				S164	MC
				S165	CA
				S166	CA
				S167	LB
				S168	LB
				S169	CA
				S170	CA
				S171	CA
				S172	CA

NOTES:

1. PROPOSED ACCESS ROADWAYS AND STAGING AREAS TO BE RESTORED TO EXISTING CONDITIONS

2. FOR RESTORATION PLANTING DETAILS SEE SHEETS C-125 & C-126.

3. THE EXTENT OF RESTORATION PLANTINGS WILL COINCIDE WITH THE ANTICIPATED RATIOS, FOR THE PHASE, OF PLANTINGS PER ACRE. REGARDLESS OF THE DISTURBANCE AREA, THE PLANTING DENSITY WILL PREVAIL TO THE EXTENT POSSIBLE.

4. ACTUAL POSITION/PROXIMITY OF PLANTINGS MAY BE ADJUSTED BASED ON FIELD CONDITIONS

KEYMAP

SCALE: 1" = 1500

LEGEND

SITE BOUNDARY LINE

FIELD SURVEYED STREAM CENTERLINE

TAX LOT LINE PER TAX MAP

EDGE OF WATER

N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)

FEMA ZONE A DESIGNATED APPROXIMATE 100-YEAR FLOODPLAIN (NO BASE FLOOD ELEVATION DETERMINED BY FEMA)

N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT

EXISTING TOP OF BANK

WLB

WL

ST

GW RECOVERY LINE

EXISTING FENCE LINE

BLOCK # - LOT # (PER TAX MAP)

ELEVATION CONTOUR PER TRC SURVEY DATA

ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA

WETLANDS BUFFER

WETLANDS LIMIT

EXISTING DIRT ROAD

EXISTING STORMWATER PIPE

EXISTING 36" RCP CULVERT

EXISTING 24" TO 36" CMP CULVERT

OPEN WATER/STREAM CHANNEL RESTORATION AREA

WETLAND RESTORATION AREA

TRANSITION/UPLAND RESTORATION AREA

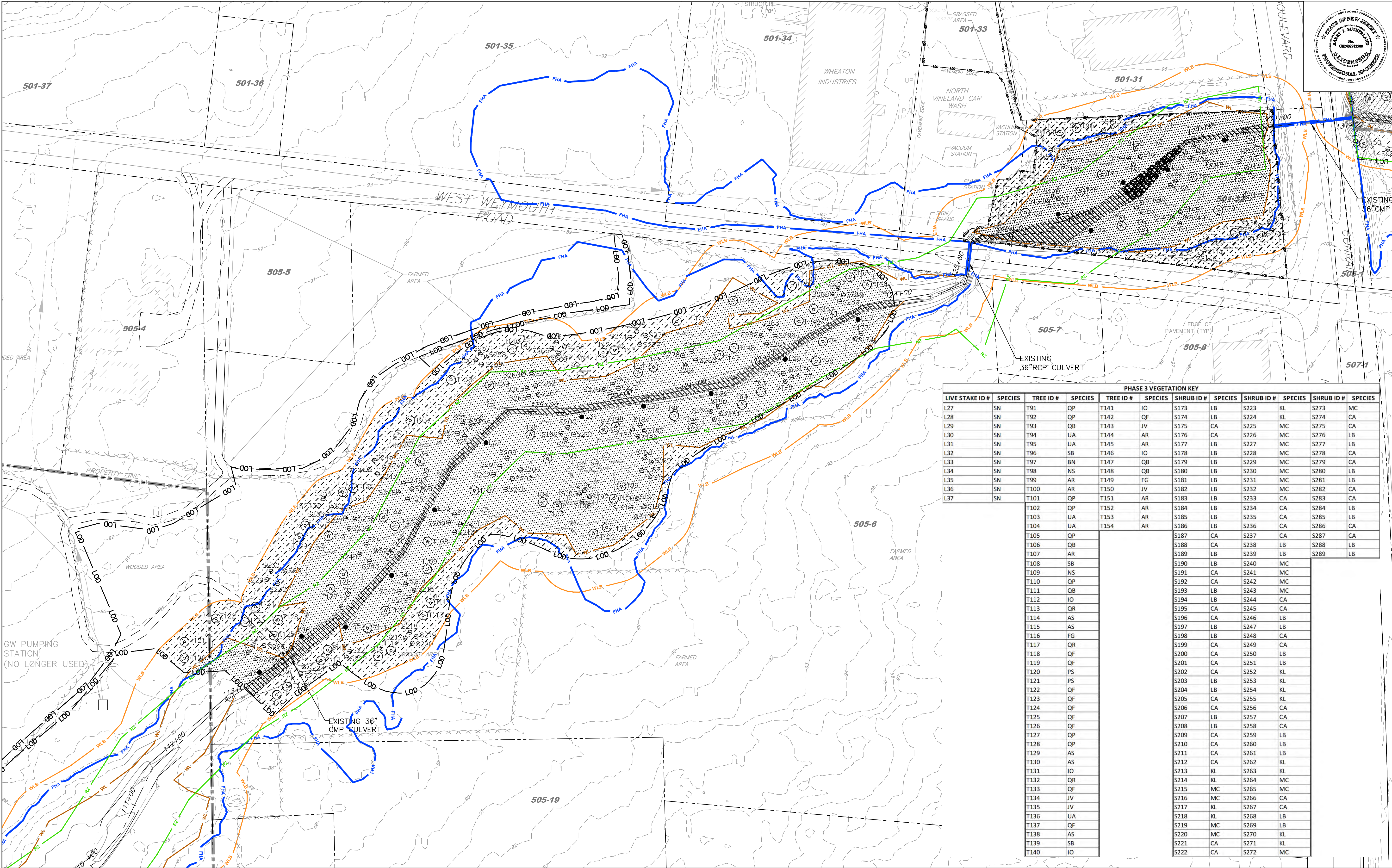
TREES OF SIGNIFICANT ECOLOGICAL VALUE

PROPOSED TREE TO BE PLANTED

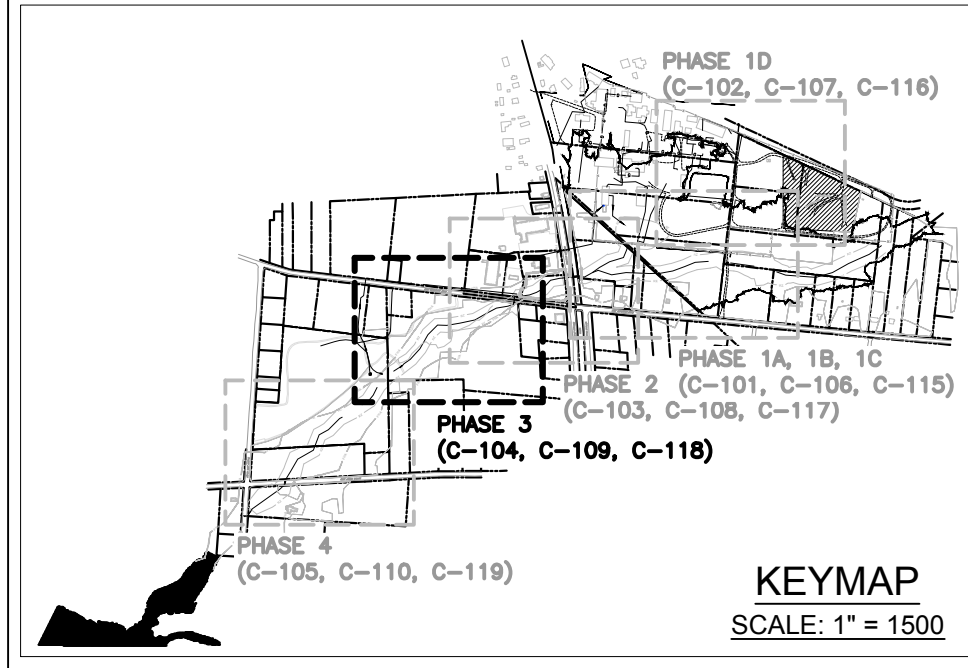
PROPOSED SHRUB TO BE PLANTED

PROPOSED LIVE STAKES TO BE PLANTED

FILE: W:\RAW\PROJECT FOLDERS\2501-3000\2710\DOCUMENTS (WIP)\REPORTS (WIP)\2015 02\DWG\FIGURES\122434_SRESP.DWG. DATE: 02/25/2017 07:34:08PM



PHASE 3 VEGETATION KEY											
LIVE STAKE ID #	SPECIES	TREE ID #	SPECIES	TREE ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES	SHRUB ID #	SPECIES
L27	SN	T91	QP	T141	IO	S173	LB	S223	KL	S273	MC
L28	SN	T92	QP	T142	QF	S174	LB	S224	KL	S274	CA
L29	SN	T93	QB	T143	JV	S175	CA	S225	MC	S275	CA
L30	SN	T94	UA	T144	AR	S176	CA	S226	MC	S276	LB
L31	SN	T95	UA	T145	AR	S177	LB	S227	MC	S277	LB
L32	SN	T96	SB	T146	IO	S178	LB	S228	MC	S278	CA
L33	SN	T97	BN	T147	QB	S179	LB	S229	MC	S279	CA
L34	SN	T98	NS	T148	QB	S180	LB	S230	MC	S280	LB
L35	SN	T99	AR	T149	FG	S181	LB	S231	MC	S281	LB
L36	SN	T100	AR	T150	JV	S182	LB	S232	MC	S282	CA
L37	SN	T101	QP	T151	AR	S183	LB	S233	CA	S283	CA
		T102	QP	T152	AR	S184	LB	S234	CA	S284	LB
		T103	UA	T153	AR	S185	LB	S235	CA	S285	LB
		T104	UA	T154	AR	S186	LB	S236	CA	S286	CA
		T105	QP			S187	CA	S237	CA	S287	CA
		T106	QB			S188	CA	S238	LB	S288	LB
		T107	AR			S189	LB	S239	LB	S289	LB
		T108	SB			S190	LB	S240	MC		
		T109	NS			S191	CA	S241	MC		
		T110	QP			S192	CA	S242	MC		
		T111	QB			S193	LB	S243	MC		
		T112	IO			S194	LB	S244	CA		
		T113	QR			S195	CA	S245	CA		
		T114	AS			S196	CA	S246	LB		
		T115	AS			S197	LB	S247	LB		
		T116	FG			S198	LB	S248	CA		
		T117	QR			S199	CA	S249	CA		
		T118	QF			S200	CA	S250	LB		
		T119	QF			S201	CA	S251	LB		
		T120	PS			S202	CA	S252	KL		
		T121	PS			S203	LB	S253	KL		
		T122	QF			S204	LB	S254	KL		
		T123	QF			S205	CA	S255	KL		
		T124	QF			S206	CA	S256	CA		
		T125	QF			S207	LB	S257	CA		
		T126	QF			S208	LB	S258	CA		
		T127	QP			S209	CA	S259	LB		
		T128	QP			S210	CA	S260	LB		
		T129	AS			S211	CA	S261	LB		
		T130	AS			S212	CA	S262	KL		
		T131	IO			S213	KL	S263	KL		
		T132	QR			S214	KL	S264	MC		
		T133	QF			S215	MC	S265	MC		
		T134	JV			S216	MC	S266	CA		
		T135	JV			S217	KL	S267	CA		
		T136	UA			S218	KL	S268	LB		
		T137	QF			S219	MC	S269	LB		
		T138	AS			S220	MC	S270	KL		
		T139	SB			S221	CA	S271	KL		
		T140	IO			S222	CA	S272	MC		



LEGEND					
	SITE BOUNDARY LINE		WETLANDS BUFFER		OPEN WATER/STREAM CHANNEL RESTORATION AREA
	FIELD SURVEYED STREAM CENTERLINE		WETLANDS LIMIT		WETLAND RESTORATION AREA
	TAX LOT LINE PER TAX MAP		EXISTING DIRT ROAD		TRANSITION/UPLAND RESTORATION AREA
	EDGE OF WATER		EXISTING STORMWATER PIPE		TREES OF SIGNIFICANT ECOLOGICAL VALUE
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		GW RECOVERY LINE		PROPOSED TREE TO BE PLANTED
	FEMA ZONE A DESIGNATED APPROXIMATE 100-YEAR FLOODPLAIN (NO BASE FLOOD ELEVATION DETERMINED BY FEMA)		EXISTING FENCE LINE		PROPOSED SHRUB TO BE PLANTED
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		BLOCK # - LOT # (PER TAX MAP)		PROPOSED LIVE STAKES TO BE PLANTED
	EXISTING TOP OF BANK		ELEVATION CONTOUR PER TRC SURVEY DATA		
			ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA		

- NOTES:
1. PROPOSED ACCESS ROADWAYS AND STAGING AREAS TO BE RESTORED TO EXISTING CONDITIONS
 2. FOR RESTORATION PLANTING DETAILS SEE SHEETS C-125 & C-126
 3. THE EXTENT OF RESTORATION PLANTINGS WILL COINCIDE WITH THE ANTICIPATED RATIOS, FOR THE PHASE, OF PLANTINGS PER ACRE. REGARDLESS OF THE DISTURBANCE AREA, THE PLANTING DENSITY WILL PREVAIL TO THE EXTENT POSSIBLE.
 4. ACTUAL POSITION/PROXIMITY OF PLANTINGS MAY BE ADJUSTED BASED ON FIELD CONDITIONS



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500



REVISION		
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0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

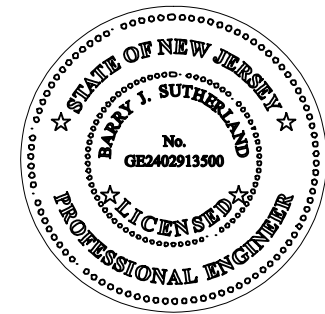
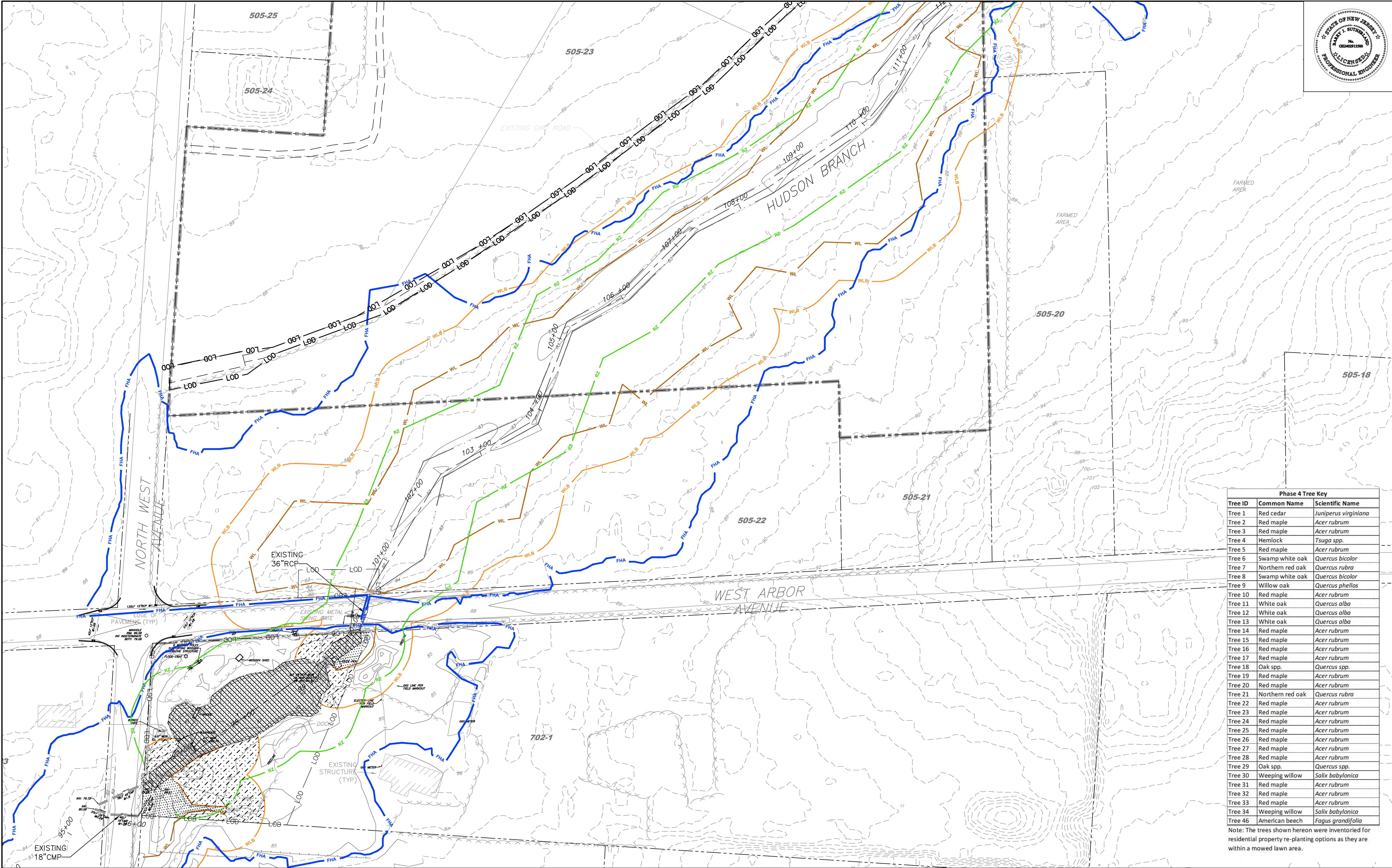
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TRC Engineers, Inc.
41 SPRING STREET
NEW PROVIDENCE, NEW JERSEY 07974
PHONE NO. (908) 988-1700
FAX NO. (973) 664-6442
Certificate of Authorization #24GA28047100

SHIELDALLOY METALLURGICAL CORPORATION
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**SITE RESTORATION PLAN
PHASE 3**

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS	C-124



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

Barry J. Sutherland
Date

3/1/17

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Phase 4 Tree Key		
Tree ID	Common Name	Scientific Name
Tree 1	Red cedar	<i>Juniperus virginiana</i>
Tree 2	Red maple	<i>Acer rubrum</i>
Tree 3	Red maple	<i>Acer rubrum</i>
Tree 4	Hemlock	<i>Tsuga spp.</i>
Tree 5	Red maple	<i>Acer rubrum</i>
Tree 6	Swamp white oak	<i>Quercus bicolor</i>
Tree 7	Northern red oak	<i>Quercus rubra</i>
Tree 8	Swamp white oak	<i>Quercus bicolor</i>
Tree 9	Willow oak	<i>Quercus phellos</i>
Tree 10	Red maple	<i>Acer rubrum</i>
Tree 11	White oak	<i>Quercus alba</i>
Tree 12	White oak	<i>Quercus alba</i>
Tree 13	White oak	<i>Quercus alba</i>
Tree 14	Red maple	<i>Acer rubrum</i>
Tree 15	Red maple	<i>Acer rubrum</i>
Tree 16	Red maple	<i>Acer rubrum</i>
Tree 17	Red maple	<i>Acer rubrum</i>
Tree 18	Oak spp.	<i>Quercus spp.</i>
Tree 19	Red maple	<i>Acer rubrum</i>
Tree 20	Red maple	<i>Acer rubrum</i>
Tree 21	Northern red oak	<i>Quercus rubra</i>
Tree 22	Red maple	<i>Acer rubrum</i>
Tree 23	Red maple	<i>Acer rubrum</i>
Tree 24	Red maple	<i>Acer rubrum</i>
Tree 25	Red maple	<i>Acer rubrum</i>
Tree 26	Red maple	<i>Acer rubrum</i>
Tree 27	Red maple	<i>Acer rubrum</i>
Tree 28	Red maple	<i>Acer rubrum</i>
Tree 29	Oak spp.	<i>Quercus spp.</i>
Tree 30	Weeping willow	<i>Salix babylonica</i>
Tree 31	Red maple	<i>Acer rubrum</i>
Tree 32	Red maple	<i>Acer rubrum</i>
Tree 33	Red maple	<i>Acer rubrum</i>
Tree 34	Weeping willow	<i>Salix babylonica</i>
Tree 46	American beech	<i>Fagus grandifolia</i>

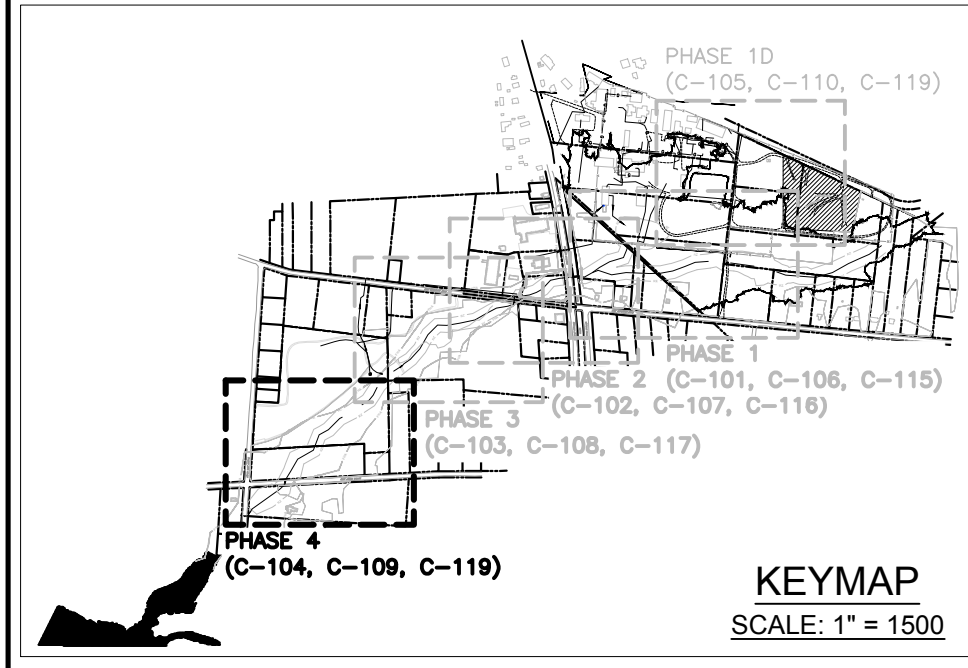
Note: The trees shown hereon were inventoried for residential property re-planting options as they are within a mowed lawn area.

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BOROUGH OF NEWFIELD/CITY OF VINELAND
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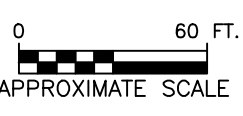
TITLE:
**SITE RESTORATION PLAN
PHASE 4**

Project No.: 112434	Scale: 1" = 60'
Drawn By: MG/SB	Date: JULY 2016
Checked By: BJS	C-125



LEGEND			
	SITE BOUNDARY LINE		WETLANDS BUFFER
	FIELD SURVEYED STREAM CENTERLINE		WETLANDS LIMIT
	TAX LOT LINE PER TAX MAP		EXISTING DIRT ROAD
	EDGE OF WATER		EXISTING STORMWATER PIPE
	N.J.D.E.P. FLOOD HAZARD AREA LIMIT (DELINEATION BY TRC)		GW RECOVERY LINE
	FEMA ZONE A DESIGNATED APPROXIMATE 100-YEAR FLOODPLAIN (NO BASE FLOOD ELEVATION DETERMINED BY FEMA)		EXISTING FENCE LINE
	N.J.D.E.P. 50 FT. RIPARIAN ZONE LIMIT		BLOCK # - LOT # (PER TAX MAP)
	EXISTING TOP OF BANK		ELEVATION CONTOUR PER TRC SURVEY DATA
			ELEVATION CONTOUR PER SUPPLEMENTAL DEM DATA
			OPEN WATER/STREAM CHANNEL RESTORATION AREA
			WETLAND RESTORATION AREA
			TRANSITION/UPLAND RESTORATION AREA
			TREES OF SIGNIFICANT ECOLOGICAL VALUE
			PROPOSED (SESC) LIMIT OF DISTURBANCE

- NOTES:
- PROPOSED ACCESS ROADWAYS AND STAGING AREAS TO BE RESTORED TO EXISTING CONDITIONS
 - FOR RESTORATION PLANTING DETAILS SEE SHEETS C-125 & C-126.
 - TREE REPLACEMENT FOR THE PHASE 4 AREA WILL INCLUDE REPLACEMENT IN-KIND, WHERE POSSIBLE, BASED ON THE TREE INVENTORY PROVIDED ON THE EXISTING CONDITIONS PLAN, C-105
 - ACTUAL POSITION/PROXIMITY OF PLANTINGS MAY BE ADJUSTED BASED ON FIELD CONDITIONS



PLANTING GENERAL NOTES

1. THE DESIGN INTENT OF THE RESTORATION PLAN IS TO RE-CREATE A NATURAL LANDSCAPE OF TREES, SHRUBS, AND GROUNDCOVER ASSOCIATED WITH A WETLAND AND RIPARIAN SYSTEM. THE PROPOSED TREES WILL BE UTILIZED WITHIN THE STREAM CORRIDOR TO PROVIDE VEGETATIVE COVER AND RESTORE THE TREE CANOPY.
2. WITH THE EXCEPTION OF PREVIOUSLY IDENTIFIED TREES OF SIGNIFICANT ECOLOGICAL VALUE (12" DBH OR GREATER), THE EXISTING ANNUAL AND PERENNIAL GRASSES, SHRUBS, AND TREES WILL BE REMOVED IN ACCORDANCE WITH THE SITE RESTORATION PLANS (SHEETS C-106 THROUGH C-112).
3. DURING PLANTING ACTIVITIES, ALL EXCAVATED MATERIAL SHALL BE PLACED ON AN IMPERMEABLE LINER UNTIL USED AS BACKFILL MATERIAL. IN ACCORDANCE WITH THE SITE REMEDIATION PLANS, THE TOP 6" OR 12", DEPENDING ON THE LOCATION, WILL BE BACKFILLED USING THE APPROVED CLEAN FILL MATERIAL AND ANY EXCESS MATERIAL WILL BE CONTAINED AND TAKEN TO THE ONSITE DISPOSAL LOCATION FOR DISPOSAL.
4. THE SITE WILL BE RESTORED TO THE EXISTING GRADE.
5. CONTRACTOR TO FURNISH ALL MATERIALS, LABOR, EQUIPMENT, AND RELATED ITEMS NECESSARY TO ACCOMPLISH PREPARATION OF BACKFILL MATERIAL, FINE GRADING, PLACEMENT OF SPECIFIED PLANT MATERIAL, FERTILIZING, STAKING, MULCHING, CLEAN-UP, DEBRIS REMOVAL, IRRIGATION, AND MAINTENANCE AS SPECIFIED.
6. CONTRACTOR TO SUBMIT THREE (3) COPIES OF THE FOLLOWING TO THE PROJECT ENGINEER OR DESIGNEE FOR REVIEW AND APPROVAL PRIOR TO THE START OF ANY WORK: (A) DOCUMENTATION THAT ALL PLANT MATERIAL HAS BEEN ORDERED; (B) SOIL ANALYSIS AND RECOMMENDED AMENDMENTS; (C) TREE STAKING AND GUYING MATERIALS; (D) PLANTING SCHEDULE INCLUDING DATES AND TIMES; AND (E) MAINTENANCE PLAN FOR FIVE FULL YEARS AFTER PLANTING PERIOD, OR AS OTHERWISE REQUIRED BY THE APPROVING AUTHORITIES.
7. ALL PLANT MATERIAL SHALL BE INSPECTED AND APPROVED BY THE PROJECT ENGINEER OR DESIGNEE PRIOR TO PLANTING AT THE SITE. ALL PLANT MATERIAL SHALL BE NO. 1 OR BETTER IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-1996) WHERE APPLICABLE.
8. PLANT MATERIAL TO COMPLY WITH STATE AND FEDERAL REGULATIONS FOR DISEASE INSPECTION, PLANTS TO BE FULLY LIVE, VIGOROUS, WELL-FORMED, WITH WELL-DEVELOPED FIBROUS ROOT SYSTEMS. ROOT BALLS OF PLANTS TO BE SOLID AND FIRMLY HELD TOGETHER (NOT ROOT-BOUND), SECURELY CONTAINED AND PROTECTED FROM INJURY AND DESICCATION. PLANTS DETERMINED BY THE PROJECT ENGINEER OR DESIGNEE TO HAVE BEEN DAMAGED; HAVE DEFORMITIES OF STEM, BRANCHES, OR ROOTS; LACK SYMMETRY, HAVE MULTIPLE LEADERS OR "Y" CROTCHES LESS THAN 30 DEGREES IN TREES WHEN SINGLE-TRUNKS ARE SPECIFIED, OR DO NOT MEET SIZE OR ANSI STANDARDS WILL BE REJECTED AND REPLACED AT THE CONTRACTOR'S EXPENSE. PLANT MATERIAL TO COME FROM A SINGLE NURSERY SOURCE FOR EACH SPECIFIED SPECIES/HYBRID. NURSERY SOURCES TO BE THOSE LOCATED IN THE SAME REGION AS THE JOB SITE.
9. DELIVER PLANT MATERIAL AFTER PREPARATION OF PLANTING AREAS HAS BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN SIX (6) HOURS AFTER DELIVERY, SET MATERIAL IN THE SHADE, PROTECT FOR WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOT BALLS MOIST BY COVERING WITH MULCH, BURLAP, OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE, AND WATER DAILY.
10. IN THE EVENT DISCREPANCIES ARE NOTED BETWEEN THE PLANT LIST AND THE ACTUAL NUMBER OF PLANTS SHOWN ON THE PLAN, THE PLAN SHALL CONTROL.
11. NO SUBSTITUTIONS SHALL BE MADE WITHOUT THE WRITTEN PERMISSION OF THE PROJECT ENGINEER; HOWEVER, MINOR REVISIONS TO PLANT MATERIALS MAY BE ALLOWED DUE TO SEASONAL PLANTING PROBLEMS OR LACK OF COMMERCIAL AVAILABILITY AS LONG AS THERE IS NO REDUCTION IN QUANTITY OF PLANT MATERIAL, NO SIGNIFICANT CHANGE IN SIZE/LOCATION OF PLANT MATERIAL, AND THE PROPOSED PLANT MATERIALS ARE NATIVE AND FALL WITHIN THE SAME GENERAL FUNCTIONAL CATEGORY AND HAVE THE SAME GENERAL DESIGN INTENT AND PHYSICAL CHARACTERISTICS AS THE MATERIALS BEING REPLACED.
12. THE LANDSCAPE CONTRACTOR SHALL RESTORE DISTURBED AREAS NOT COVERED IN LANDSCAPE MATERIAL OR MULCH WITH A PERENNIAL SEED MIX CONSISTING OF NATIVE SPECIES AS SPECIFIED BY THE ORIGINAL RESTORATION PLAN.
13. WHERE APPLICABLE, MULCH SHALL BE SHREDDED HARDWOOD BARK MULCH AND SHALL BE APPLIED TO ALL SHRUBS AND TREES AT A MINIMUM DEPTH OF FOUR (4) INCHES. A 4' DIAMETER RING OF MULCH SHALL BE APPLIED TO INDIVIDUAL TREES AND A 30" DIAMETER RING TO INDIVIDUAL SHRUBS. MULCH SHALL COVER ALL PLANTING AREAS COMPLETELY. REMOVE ALL WEEDS, DEBRIS, AND ROCKS FROM GROUND SURFACE AREA PRIOR TO INSTALLING MULCH.
14. CLIENT, THEIR SUCCESSOR OR ASSIGNEES SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE TREES, SHRUBS, PERENNIAL GRASSES, AND GROUNDCOVER, AND REPLACEMENT OF THOSE WHICH HAVE DIED OR BECOME DISEASED FROM THE TIME OF PLANTING THROUGH ONE FULL CALENDAR YEAR FROM THE DATE OF PLANTING.
15. THE LOCATION OF THE UTILITIES SHOWN ON THE PLAN SHOULD BE CONSIDERED APPROXIMATE ONLY. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATION (CALL 811 OR ACCESS VIA WWW.NJ1-CALL.ORG).
16. NO PLANT MATERIAL WITH MATURE GROWTH GREATER THAN THREE (3) FEET IN HEIGHT SHALL BE PLANTED WITHIN POTABLE WATER, SANITARY SEWER, OR NON-POTABLE WATER EASEMENTS.
17. SOIL FOR LANDSCAPING SHALL BE AMENDED WITH ORGANIC MATERIAL IN ORDER TO COMPLY WITH THE TEXTURAL AND ORGANIC CONTENT REQUIREMENTS AS STATED ON THE PLAN AND IN THE SPECIFICATIONS AND OTHERWISE COMPLIANT WITH NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS.
18. PROVIDE FULL MAINTENANCE BY SKILLED EMPLOYEES OF LANDSCAPE INSTALLERS. IF APPLICABLE, LANDSCAPING PERSONNEL SHALL BE (CURRENTLY) CERTIFIED TO WORK ON HAZARDOUS WASTE SITES IN ACCORDANCE WITH OSHA AND OTHER APPLICABLE HEALTH AND SAFETY REQUIREMENTS, INCLUDING BUT NOT LIMITED TO 29 CFR 1910.120.
19. CONTRACTOR TO MAINTAIN PLANTINGS THROUGH COMPLETED INSTALLATION, AND UNTIL ACCEPTANCE OF LANDSCAPE INSTALLATION. PLANTING MAINTENANCE TO INCLUDE HAND WATERING, WEEDING, PRUNING BROKEN OR DAMAGED LIMBS, CULTIVATING, TIGHTENING AND REPAIRING OF TREE GUYS (WHERE APPLICABLE), RESETTNG PLANTS TO PROPER GRADES AND POSITION, AND RE-ESTABLISHING SETTLED GRADES. HERBICIDE TO CONTROL INVASIVE WEEDS/SHRUBS IS NOT RECOMMENDED FOR ONE YEAR FOLLOWING LANDSCAPE INSTALLATION. INCLUDED IS REPLACEMENT OF DEAD PLANTS AND PLANTS SHOWING LOSS OF 40 PERCENT MORE OF CANOPY.
20. THE FIRST TWO WEEKS AFTER PLANTING WILL BE THE MOST CRUCIAL TO SURVIVAL; THEREFORE, CONTRACTOR SHOULD KEEP THE PLANT MATERIAL PROPERLY IRRIGATED. DO NOT FERTILIZE UNTIL THE SECOND YEAR AFTER PLANTING.

SHRUB AND TREE INSTALLATION

1. IF POSSIBLE, TREES AND SHRUBS OF ONE SPECIES SHOULD BE PROCURED FROM ONE NURSERY TO ENSURE CONSISTENCY. THE TREE AND SHRUB'S CENTRAL LEADER SHALL NOT BE PRUNED. MINOR PRUNING OF BROKEN OR DAMAGED LIMBS IS ALLOWED.
2. DIG THE PLANTING PIT AT LEAST TWICE THE WIDTH OF THE ROOT BALL OR CONTAINER. EXCAVATED MATERIAL SHALL BE PLACED ON AN IMPERMEABLE LINER UNTIL USED AS BACKFILL MATERIAL. IN ACCORDANCE WITH THE SITE REMEDIATION PLANS, THE TOP 6" OR 12", DEPENDING ON THE LOCATION, WILL BE BACKFILLED USING THE APPROVED CLEAN FILL MATERIAL AND ANY EXCESS MATERIAL WILL BE DISPOSED OF IN ACCORDANCE WITH THE REMEDIAL DISPOSAL PLANS.
3. SET THE ROOT BALL LEVEL WITH THE SURFACE, OR 1"-2" ABOVE THE GRADE IF THE SOIL IS PRONE TO SETTLING. REMOVE THE BURLAP FROM AT LEAST THE TOP 12 INCHES OF THE ROOT BALL AND SET INTO THE PLANTING PIT. BACKFILL THE PLANTING PIT WITH THE STAGED NATIVE SOILS AND, WHEN REQUIRED, APPROVED CLEAN FILL MATERIAL. GENTLY TAMP DOWN AND THEN WATER TO REMOVE AIR POCKETS.
4. PLANTING BACKFILL MATERIAL FOR TREES AND SHRUBS SHALL, AT A MINIMUM, CONSIST OF ONE (1) PART BACKFILL MATERIAL, TWO (2) PARTS EXISTING SEDIMENTS, IF APPROPRIATE, AND ONE (1) PART COMMERCIAL COMPOST, AND OTHERWISE IN ACCORDANCE WITH PLANS AND SPECIFICATIONS FOR BACKFILL REQUIREMENTS.
5. WATERING OF ALL PLANT MATERIAL SHALL BE DONE BY SUPPLEMENTAL MEANS AFTER INSTALLATION. NO PERMANENT IRRIGATION SYSTEM IS PROPOSED FOR THE RESTORED AREAS.

LIVE STAKE INSTALLATION

1. STAKES OF ONE SPECIES SHOULD BE PROCURED FROM ONE NURSERY IN EARLY TO MID-WINTER TO ENSURE CONSISTENCY OF CULTIVATION. THE STAKES SHOULD BE PLANTED IN LATE WINTER/EARLY SPRING (MID-MARCH TO EARLY APRIL) WHEN THEY ARE DORMANT (BEFORE BUDS BREAK, LEAVES OR NEW GROWTH APPEARS). IF THE STAKES CANNOT BE PLANTED DURING THIS SHORT PERIOD, IT IS RECOMMENDED TO WAIT UNTIL THE FOLLOWING SEASON.
2. LIVE STAKE SIZE SHOULD BE STRAIGHT, 0.5 TO 1.5 INCHES IN DIAMETER AND 2 TO 3 FEET LONG.
3. STAKES SHOULD BE TRANSPLANTED WITHIN 24 TO 48 HOURS OF RECEIVING THEM ON SITE.
4. PRIOR TO PLANTING, REMOVE ANY SIDE BRANCHES WITH A SHARP KNIFE OR SHEARS. LIVE STAKE TOPS SHOULD BE CUT SQUARE SO THEY CAN BE TAMPED OR PUSHED INTO THE SOIL. LIVE STAKE BASAL ENDS (LOWER PORTION CUT FROM TREE OR SHRUB) SHOULD BE CUT ANGLES TO ALLOW FOR EASY INSERTION IN SOIL.
5. LIVE STAKES SHALL BE SOAKED IN WATER FOR APPROXIMATELY 1-2 DAYS BEFORE PLANTING. THEY SHOULD BE KEPT COOL AND MOIST IN WATER DURING THE PLANTING OPERATION.
6. LIVE STAKES WILL BE INSERTED INTO THE GROUND (ANGLED BASAL END DOWN) FOR APPROXIMATELY 75% OF THE STAKE LENGTH (A 24 INCH STAKE SHOULD BE IN THE GROUND 18 INCHES). TAMP LIVE STAKES INTO THE GROUND, MAKING SURE BUDS ARE ORIENTED UP. DEPENDING ON THE SUBSTRATE, STAKES MAY BE PUSHED, INSERTED IN HOLE/SLOT OR POUNDED INTO THE GROUND. USE OF A PILOT HOLE IS RECOMMENDED USING REBAR, AUGER, OR PLANTING SHOVEL (IT IS IMPORTANT TO ENSURE ADEQUATE STAKE CONTACT AND TO ELIMINATE AIR BY FIRING SURFACE AROUND STAKE).
7. IF THE TOP OF THE STAKE IS DAMAGED (SPLIT) FROM POUNDING IT SHOULD BE PRUNED DOWNED TO AN UNDAMAGED AREA ON THE STAKE OR REPLACED; IDEALLY TWO BUDS AND/OR BUD SCARS SHOULD BE ABOVE THE GROUND AFTER PLANTING.
8. ORIENT THE LIVE STAKES PERPENDICULAR TO THE SLOPE WITH GROWING TIPS PROTRUDING SLIGHTLY FROM THE SURFACE. PLACE THE LIVE STAKES IN ACCORDANCE WITH THE PROJECT LANDSCAPE ARCHITECT OR DESIGNEE.

NATIVE PLANT PLUG INSTALLATION

1. THE PLUGS SHOULD BE PLANTED BETWEEN APRIL AND OCTOBER AS LONG AS THE GROUND IS NOT FROZEN. IF SITE IS PREPARED AT ANY OTHER TIME OF THE YEAR, STABILIZE WITH THE APPROVED SEED MIX FOR THE CORRESPONDING RESTORATION AREA. UNDER NO CIRCUMSTANCES SHALL THE SITE BE STABILIZED WITH WINTER RYE, GRAIN RYE, OR WINTER WHEAT. THESE PLANTS PRODUCE TOXINS THAT INHIBIT OTHER SEED GERMINATION.
2. PLUGS SHALL BE IN 2 3/8" SQUARE X 3 1/4" DEEP OPEN-BOTTOMED POTS. PLUGS SHALL BE THOROUGHLY ROOTED THROUGH THE CONTAINER. NO SPECIES SHALL BE SUBSTITUTED WITHOUT APPROVAL OF THE PROJECT LANDSCAPE ARCHITECT OR DESIGNEE.
3. VERIFY THAT THE SITE IS CLEAN AND FREE OF DEBRIS.
4. TO INSTALL PLUGS, USE AN AUGER OR OTHER APPROPRIATE TOOL TO EXCAVATE PLANTING HOLES ON 1 FOOT CENTERS IN A STAGGERED PATTERN.
5. ALL EXCAVATED MATERIAL SHALL BE PLACED ON AN IMPERMEABLE LINER UNTIL USED AS BACKFILL MATERIAL. IN ACCORDANCE WITH THE SITE REMEDIATION PLANS, THE TOP 6" OR 12", DEPENDING ON THE LOCATION, WILL BE BACKFILLED USING THE APPROVED CLEAN FILL MATERIAL AND ANY EXCESS MATERIAL WILL BE DISPOSED OF IN ACCORDANCE WITH THE REMEDIAL DISPOSAL PLANS.
6. EVENLY DISTRIBUTE APPROVED SEED MIX FOR THE CORRESPONDING RESTORATION AREA THROUGHOUT PLANTING. PLACE WILDFLOWERS IN INFORMAL DRIFTS OF 3-7 OF ANY ONE SPECIES WITH THE EDGES BLENDED INTO ADJACENT SPECIES TO AVOID A FORMAL APPEARANCE.
7. PLANT PLUGS LEVEL WITH EXISTING SOIL GRADE. BE CERTAIN THAT SOIL IS PLACED AROUND THE PLUGS AND FIRMED INTO PLACE. DO NOT FILL AROUND PLUGS WITH MULCH.
8. THOROUGHLY SOAK PLUGGED AREA WITH WATER UNTIL SOIL IS MOIST TO A DEPTH OF 4 INCHES.

GENERAL NOTES

TEMPORARY SEEDING AND MULCHING WILL OCCUR WITHIN SEVEN (7) DAYS OF DISTURBANCE TO STABILIZE AREAS OF BARE SOIL. PERMANENT PLANTING AND SEEDING SHALL BE COMPLETED BY OCTOBER AND PLUGS ARE TO BE PLATED BETWEEN APRIL AND OCTOBER; HOWEVER THE PROJECT ENGINEER OR DESIGNEE SHALL HAVE FINAL SAY WHEN TO BEGIN PLANTING.

PRIOR TO PERMANENT PLANTING AND SEEDING, THE SITE SURFACE SHALL BE PREPARED FOR PLANTING. CONTRACTOR SHALL RIP AND DISC ALL SURFACES WITHIN THE RIPARIAN UPLAND, WETLAND BUFFER ZONE AND WETLANDS TO IMPROVE COMPACTED SURFACES AND ELIMINATE CHANNELIZED FLOW.

THE SITE SHOULD HAVE A MINIMUM 6" INCH LAYER OF SUITABLE BACKFILL MATERIAL THAT MEETS DCR SPECIFICATIONS OF 5% ORGANIC CONTENT AND NJDEP CLEAN FILL REQUIREMENTS.

ALL EXCAVATED MATERIAL SHALL BE PLACED ON AN IMPERMEABLE LINER UNTIL USED AS BACKFILL MATERIAL. IN ACCORDANCE WITH THE SITE REMEDIATION PLANS, THE TOP 6" OR 12", DEPENDING ON THE LOCATION, WILL BE BACKFILLED USING THE APPROVED CLEAN FILL MATERIAL AND ANY EXCESS MATERIAL WILL BE DISPOSED OF UTILIZING THE REMEDIAL DISPOSAL PLANS.

A 1 INCH BLANKET OF CERTIFIED ORGANIC COMPOST SHOULD BE APPLIED TO ALL WETLAND CELLS AND ADJACENT RIPARIAN PLANTING AREAS.

THE SITE SHALL BE PLANTED BY THE PHASES DEPICTED IN THE PLANTING PLANS WITH SPECIES LISTED IN THE ACCOMPANYING PLANTING TABLE.

THE SITE WILL BE RESTORED TO THE ORIGINAL GRADE.

DEER BROWSE PROTECTION TO BE PERFORMED BY CONTRACTOR AT A FREQUENCY SUFFICIENT TO PREVENT LOSS OF PLANT COVERAGE THROUGHOUT MONITORING PERIOD.

GROUND COVER SHALL BE ESTABLISHED ON EXPOSED SLOPES WITHIN THIRTY (30) WORKING DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING.

PLANTING ZONE DESCRIPTIONS

UPLAND / RIPARIAN AREA – THIS ZONE COVERS THE AREAS OF THE SITE NOT DESIGNATED AS WETLAND PLANTING ZONES. THIS ZONE SERVES AS A RIPARIAN BUFFER FOR THE STREAM AND WETLAND.

WETLANDS – THIS ZONE DESIGNATES AREAS OF WETLAND THAT WILL BE INUNDATED PERIODICALLY THROUGHOUT THE YEAR DURING NORMAL CONDITIONS.

STREAM CHANNEL / OPEN WATER – THIS ZONE DESIGNATES AREAS OF THE STREAM CHANNEL OR OPEN WATER THAT WILL BE INUNDATED DURING NORMAL CONDITIONS AND WILL RECEIVE NO PLANTINGS.

BACKFILL MATERIAL REPLACEMENT SPECIFICATIONS

THE FOLLOWING ARE RECOMMENDATIONS FOR REPLACEMENT SOILS TO BE INSTALLED FOLLOWING EXCAVATION IN WETLAND, UPLAND, AND OPEN WATER AREAS (E.G., SEDIMENT). IT IS UNDERSTOOD THAT THESE SPECIFICATIONS, IN PARTICULAR, PARTICLE SIZING, MAY VARY SLIGHTLY BASED ON COMMERCIAL AVAILABILITY.

1. PROPOSED REPLACEMENT SOILS FOR WETLAND AND UPLAND AREAS SHOULD CONSIST OF A WELL-GRADED (RANGING FROM #10 TO #100 SIEVE) SAND; THE MINIMUM % FINES (SILT OR CLAY PASSING #200 SIEVE) SHALL BE 30%; MINIMUM ORGANIC FRACTION SHOULD BE 10%.
2. BACKFILL MATERIAL SHALL FALL WITHIN APPROPRIATE AGRONOMIC PARAMETERS FOR SUPPORT OF PLANT GROWTH BASED UPON THE RESULTS OF ANALYSIS BY THE RUTGERS UNIVERSITY SOIL TESTING LABORATORY.
3. ALL BACKFILL MATERIAL SHALL MEET PROJECT CLEAN FILL SPECIFICATIONS
4. BACKFILL MATERIAL SHALL BE LIGHTLY ROLLED AFTER INSTALLATION, AND SCARIFIED TO PROMOTE SEED GERMINATION, AND OTHERWISE PLACED AND MANAGED IN CONFORMANCE WITH THE GOVERNING SOIL EROSION AND SEDIMENT CONTROL REQUIREMENTS, AS PER THE SOIL CONSERVATION DISTRICT.
5. CHANGES TO THESE BACKFILL MATERIAL SPECIFICATIONS SHALL BE SUBJECT TO PRIOR REVIEW AND WRITTEN APPROVAL BY THE DESIGN ENGINEER.

Master Planting Schedule													
Tree and Shrub Planting List													
KEY	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPRD.	ROOT	DIMENSIONS AT MATURITY	HABITAT	Quan 1A	Quan 18/C	Quan 2	Quan 3
AA	24	<i>Alnus rugosa</i>	Speckled alder	N/A	N/A	N/A	Tubeling	6'-12' ht. x 6'-12' spr.; up to 25' ht.	W	0	24	0	0
AR	24	<i>Acer rubrum</i>	Red maple	2 - 2.5"	4'-6'	4'-5'	B&B	40'-60' ht. x 40'-50' spr.; up to 120' ht.	W	3	10	2	9
AS	10	<i>Acer saccharum</i>	Sugar maple	2 - 2.5"	4'-6'	4'-5'	B&B	60'-75' ht. x 40'-50' spr.; up to 120' ht.	U	0	5	0	5
BN	8	<i>Betula nigra</i>	River birch	2 - 2.5"	3'-4'	3'-4'	B&B	40'-70' ht. x 40'-60' spr.; up to 90' ht.	W	0	4	3	1
CA	100	<i>Clethra alnifolia</i>	Coastal sweetpepperbush	N/A	N/A	N/A	Tubeling	3'-8' ht. x 2'-7' spr.; up to 16' ht.	W	0	40	16	44
FG	5	<i>Fagus grandifolia</i>	American beech	2 - 2.5"	4'-6'	4'-5'	B&B	50'-75' x 40'-60' spr.; up to 120' ht.	U	0	3	0	2
IO	10	<i>Ilex opaca</i>	American holly	2 - 2.5"	3'-4'	3'-4'	B&B	35'-50' ht. x 15'-25' spr.; up to 100' ht.	U	1	4	0	5
JV	6	<i>Juniperus virginiana</i>	Eastern red cedar	2 - 2.5"	4'-6'	4'-5'	B&B	40-50' ht. x 10'-20' spr.; up to 60' ht.	U	0	2	0	4
KL	60	<i>Kalmia latifolia</i>	Mountain laurel	N/A	N/A	N/A	Tubeling	6'-10' ht x 7'-15' spr.; up to 40' ht.	U	12	28	6	14
LB	49	<i>Lindera benzoin</i>	Northern spicebush	N/A	N/A	N/A	Tubeling	6'-10' ht. x 6-12' spr.; up to 12' ht.	W	0	0	10	39
MC	56	<i>Morella cerifera</i>	Wax myrtle	N/A	24"-36"	30"-36"	5 gal.	6'-12' ht. x 6'-12' spr.; up to 20' ht.	U	4	26	6	20
NS	4	<i>Nyssa sylvatica</i>	Black gum	2 - 2.5"	4'-6'	4'-5'	B&B	30'-50' ht. x 20'-30' spr.; up to 100' ht.	W	0	2	0	2
PS	5	<i>Pinus strobus</i>	Eastern white pine	2 - 2.5"	4'-6'	3'-4'	B&B	50'-80' ht. x 25'-35' spr.; up to 120' ht.	U	0	1	2	2
QB	15	<i>Quercus bicolor</i>	Swamp white oak	2 - 2.5"	4'-6'	4'-5'	B&B	50'-60' ht. x 40'-60' spr.; up to 120' ht.	W	0	8	2	5
QF	21	<i>Quercus falcata</i>	Southern red oak	2 - 2.5"	4'-6'	4'-5'	B&B	70'-80' ht. x 50'-70' spr.; up to 125' ht.	U	0	11	0	10
QP	20	<i>Quercus phellos</i>	Willow Oak	3 - 2.5"	4'-6'	4'-5'	B&B	65'-75' ht. x 40'-50' spr.; up to 100' ht.	W	0	10	2	8
QR	10	<i>Quercus rubra</i>	Northern red oak	2 - 2.5"	4'-6'	4'-5'	B&B	60'-75' ht. x 60'-75' spr.; up to 100' ht.	U	2	4	1	3
SB	5	<i>Salix babylonica</i>	Babylon weeping willow	2 - 2.5"	4'-6'	24"-36"	5 gal.	30'-40' ht. x 30'-50' spr.; up to 50' ht.	W	0	2	0	3
SN	37	<i>Salix nigra</i> *	Black willow	N/A	N/A	N/A	Live Stake	30'-60' ht. x 30'-60' spr.; up to 75' ht.	W	8	13	5	11
UA	11	<i>Ulmus americana "Princeton"</i>	American elm	2 - 2.5"	4'-6'	4'-5'	B&B	60'-80' ht. x 30'-40' spr.; up to 100' ht.	W	0	4	2	5
Note: Tree species and quantities in Phase 4 will be restored on an individual basis, dependent on the disturbance necessary										Total per phase			
										30	201	57	192

Note: Tree species and quantities in Phase 4 will be restored on an individual basis, dependant on the disturbance necessary to complete remedial work.

Herbaceous Cover Restoration - Riparian/Upland Area Seed Mix					
BOTANICAL NAME	COMMON NAME	HT.	BLOOM	% of MIX	POUNDS/ ACRE*
<i>Solidago nemoralis</i>	Gray goldenrod	1-2	June - Oct.	10%	2.4 lbs.
<i>Echinacea purpurea</i>	Purple coneflower	1-2	April - Sept.	10%	2.4 lbs.
<i>Rudebeckia hirta</i>	Black-eyed susan	1-2	June - Oct.	10%	2.4 lbs.
<i>Monarda punctata</i>	Spotted horsemint	1-2	April - Aug.	10%	2.4 lbs.
<i>Liatris spicata</i>	Dense blazing star	2-4	June - Sept.	10%	2.4 lbs.
<i>Coreopsis lanceolata</i>	Lanceleaf tickseed	1-2	April - June	10%	2.4 lbs.
<i>Sorghastrum nutans</i>	Indian grass	4-6	Aug. - Oct.	10%	2.4 lbs.
<i>Andropogon virginicus</i>	Broomsedge	2-5	Sept. - Nov.	10%	2.4 lbs.
<i>Asclepias syriaca</i>	Butterfly weed (milkweed)	4-6	June - Aug.	10%	2.4 lbs.
<i>Euthamia graminifolia</i>	Flat-top goldenrod	3-6	July - Sept.	10%	2.4 lbs.
Total				100%	24 lbs. / acre

Perennial Grass/Wildflower Mix - Wetland Seed Mix					
BOTANICAL NAME	COMMON NAME	HT.	BLOOM	% of MIX	POUNDS/ ACRE*
<i>Carex crinita</i>	Fringed sedge	1-3	June - Aug.	5%	1.3 lbs.
<i>Carex lurida</i>	Shallow sedge	1-3	March - May	5%	1.3 lbs.
<i>Carex stricta</i> *	Tussock sedge	1-3	May - June	5%	1.3 lbs.
<i>Iris versicolor</i>	Blueflag iris	2-3	May	5%	1.2 lbs.
<i>Schoenoplectus atrovirens</i>	Green bulrush	2-5	May - Aug.	5%	1.2 lbs.
<i>Liatris spicata</i>	Dense blazing star	3-4	June - Sept.	5%	1.2 lbs.
<i>Penstemon digitalis</i>	Foxglove beardtongue	2-3	May - July	5%	1.2 lbs.
<i>Echinacea purpurea</i> *	Purple coneflower	1-2	April - Sept.	5%	1.3 lbs.
<i>Juncus effusus</i>	Soft rush	1-3	July - Sept.	5%	1.3 lbs.
<i>Labellia siphilitica</i>	Blue lobelia	3-5	July - Oct.	5%	1.3 lbs.
<i>Panicum virgatum</i>	Switchgrass	4-6	Aug - Nov.	5%	1.3 lbs.
<i>Symphytichum novae-angliae</i>	New England aster	3-5	Aug - Oct.	5%	1.3 lbs.
<i>Schoenoplectus cyperinus</i> *	Woolgrass	4-6	June - Sept.	5%	1.3 lbs.
<i>Verbena hastata</i> *	Blue vervian	2-6	July - Sept.	5%	1.3 lbs.
<i>Vernonia noveboracensis</i> *	New York ironweed	4-6	Aug - Sept.	5%	1.3 lbs.
<i>Asclepias incarnata</i>	Swamp milkweed	4-6	July - Aug.	5%	1.3 lbs.
<i>Eupatorium caelestinum</i>	Mist flower	2-3	July - Oct.	5%	1.3 lbs.
<i>Helopsis helianthoides</i>	Oxeye sunflower	3-6	June - Aug.	5%	1.3 lbs.
<i>Hibiscus moscheutos</i> *	Swamp rose mallow	3-7	July - Sept.	5%	1.3 lbs.
<i>Labellia cardinalis</i>	Cardinal flower	2-4	July - Sept.	5%	1.3 lbs.
TOTAL				100%	25.3 lbs. /acre

* - to be planted as plug

Plant Zone, Acreage, and Planting Estimates				
ZONE	ACRES	WETLAND PLANT PLUGS	TREES	SHRUBS
Upland/Riparian Area	4.55	0	67	116
Wetlands	6.95	To be planted on 5 - 10 foot centers	124	173
Stream Channel/Open Water	1.96	0	0	0

Note: Limited to Phases 1, 2, and 3 only



BARRY J. SUTHERLAND, P.E.
NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500

3/1/17

Date		
NO.	REVISION	DATE
0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16
1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

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- THIS PLAN IS NOT VALID UNLESS A RAISED SEAL IS AFFIXED HERETO.

TRC Engineers, Inc.
41 SPRING STREET
NEW PROVIDENCE, NEW JERSEY 07974
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FAX NO. (973) 564-6442
Certificate of Authorization #24GA28047100

SHIELDALLOY
METALLURGICAL CORPORATION

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE:
**RESTORATION PLANTING
DETAILS SHEET 1 OF 2**

Project No.: 112434 Scale: AS SHOWN

Drawn By: SJ Date: JULY 2016

Checked By: BJS/PJH

C-126



A circular professional engineer seal for the State of New Jersey. The outer ring contains the text "STATE OF NEW JERSEY" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. Inside this ring, the name "BARRY J. SUTHERLAND" is written in a larger font, with "No." and the license number "GE2402913500" centered below it. The word "LICENSED" is written in a smaller font, flanked by two stars, at the bottom of the inner circle.

Bary J. Lutz

3/1/17
Date

[illegible]

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**SHIELDALLOY
METALLURGICAL CORPORATION**

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

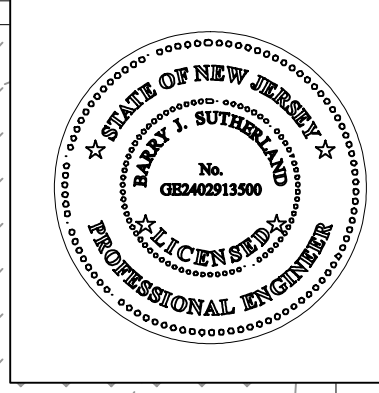
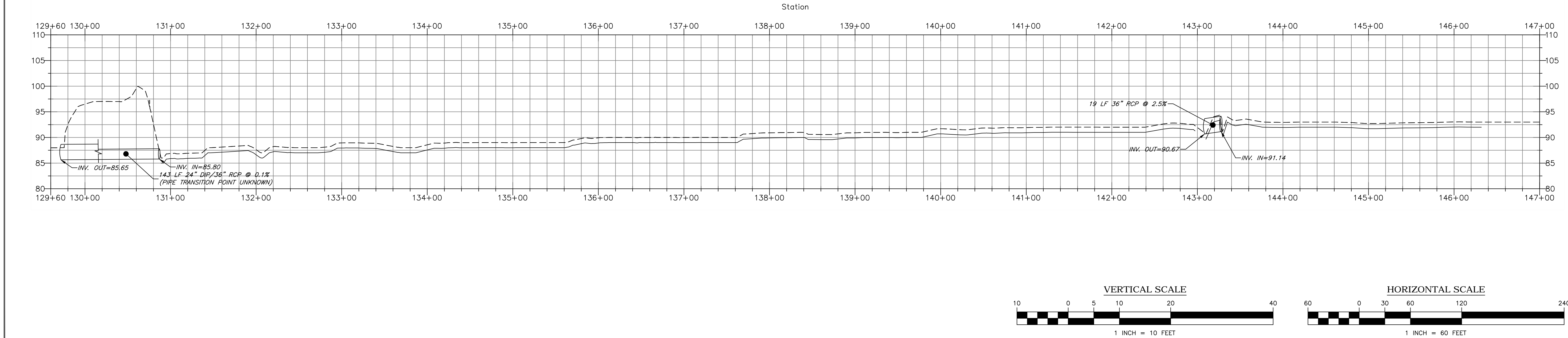
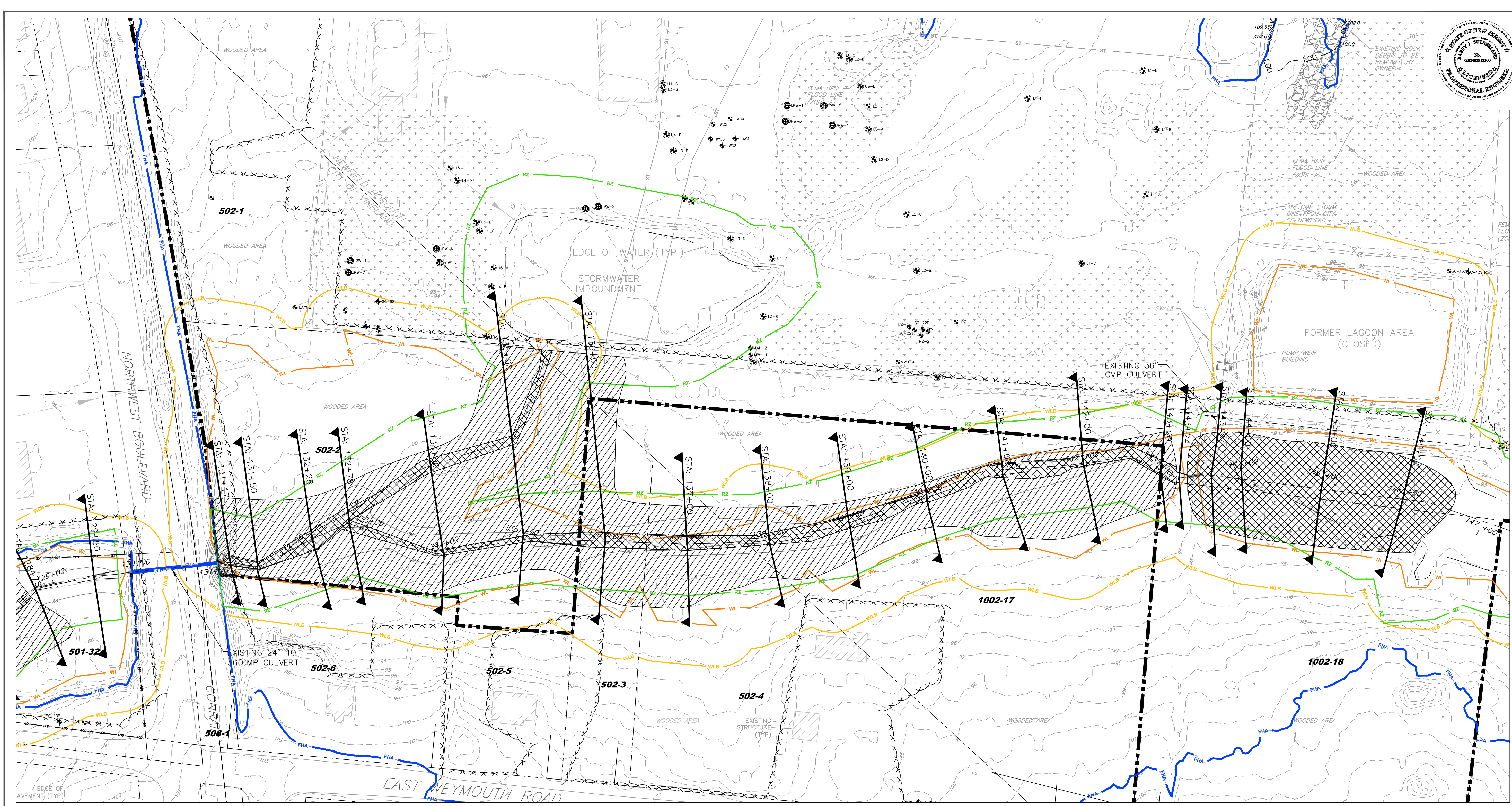
TITLE: RESTORATION PLANTING
DETAILS SHEET 2 OF 2

Project No.: 112434	Scale: AS SHOWN
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Drawn By: SJ	Date: JULY 2016
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Checked By: BJS/PJH

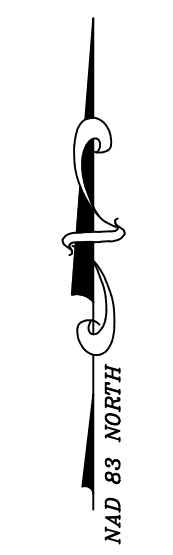
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BARRY J. SUTHERLAND, P.E. NJ PROFESSIONAL ENGINEER Lic. No. 24GE02913500		
Date		3/1/17
NO.	REVISION	DATE
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1	ISSUED FOR 90% DESIGN REVIEW	3/1/17

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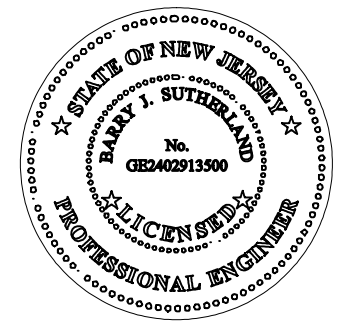
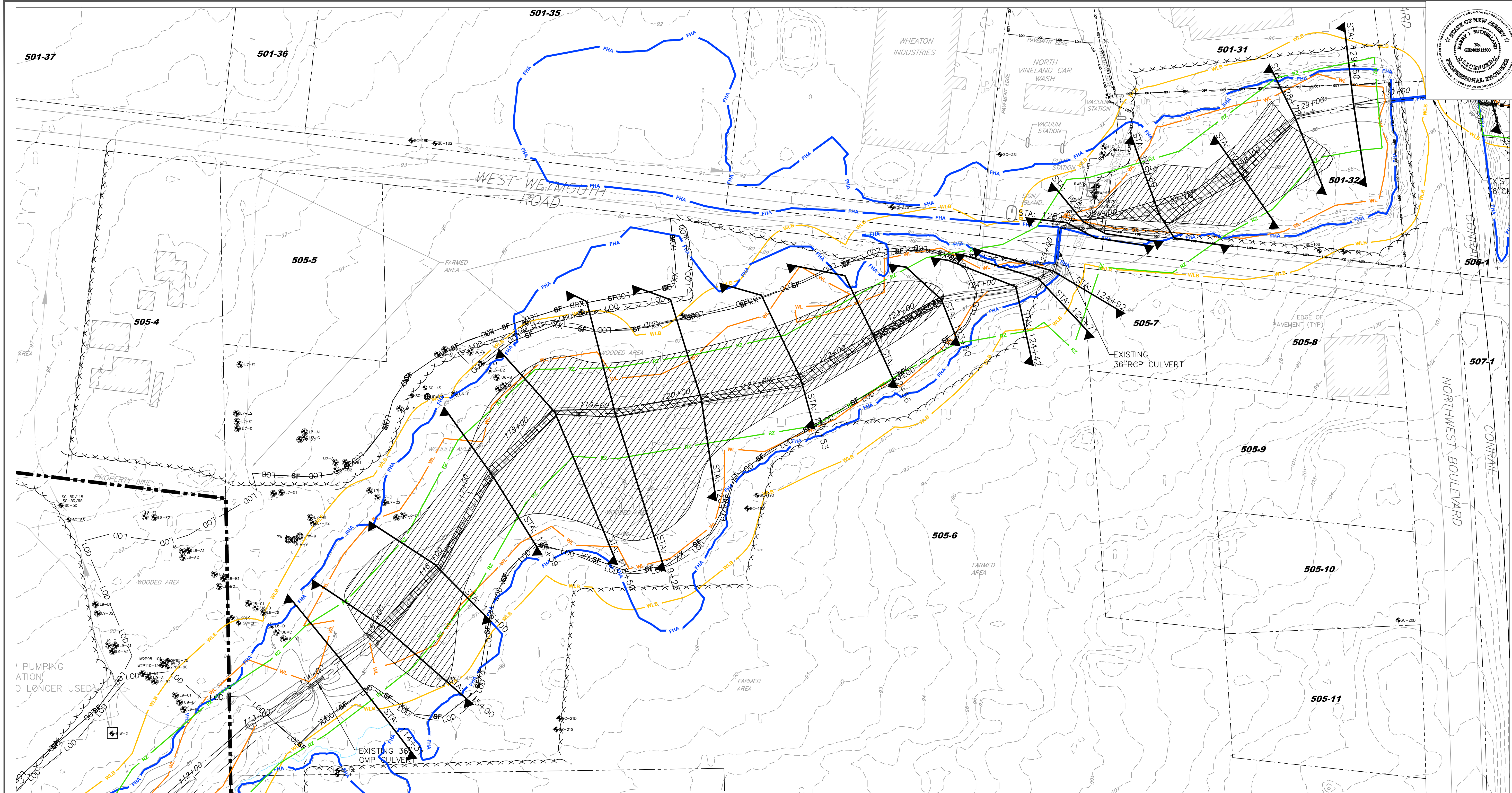


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**SHIELDALLOY
METALLURGICAL CORPORATION**
BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
NEW JERSEY

TITLE: **CROSS SECTION LOCATION
PLAN & PROFILE
PAGE 1**

Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JANUARY 2017
Checked By: BJS/PJH	C-128



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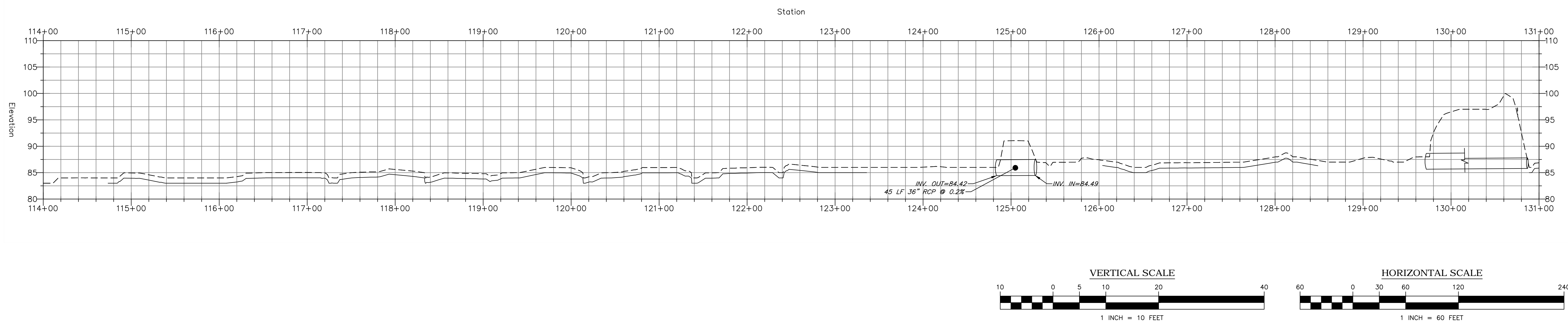
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0	ISSUED FOR PRELIMINARY DESIGN REVIEW	7/29/16	
1	ISSUED FOR 90% DESIGN REVIEW	12/30/16	

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Stream Centerline Sta. 114+00 to 131+00



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FAX NO. (973) 564-6442
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METALLURGICAL CORPORATION**

BOROUGH OF NEWFIELD/CITY OF VINELAND
BURLINGTON COUNTY/GLOUCESTER COUNTY
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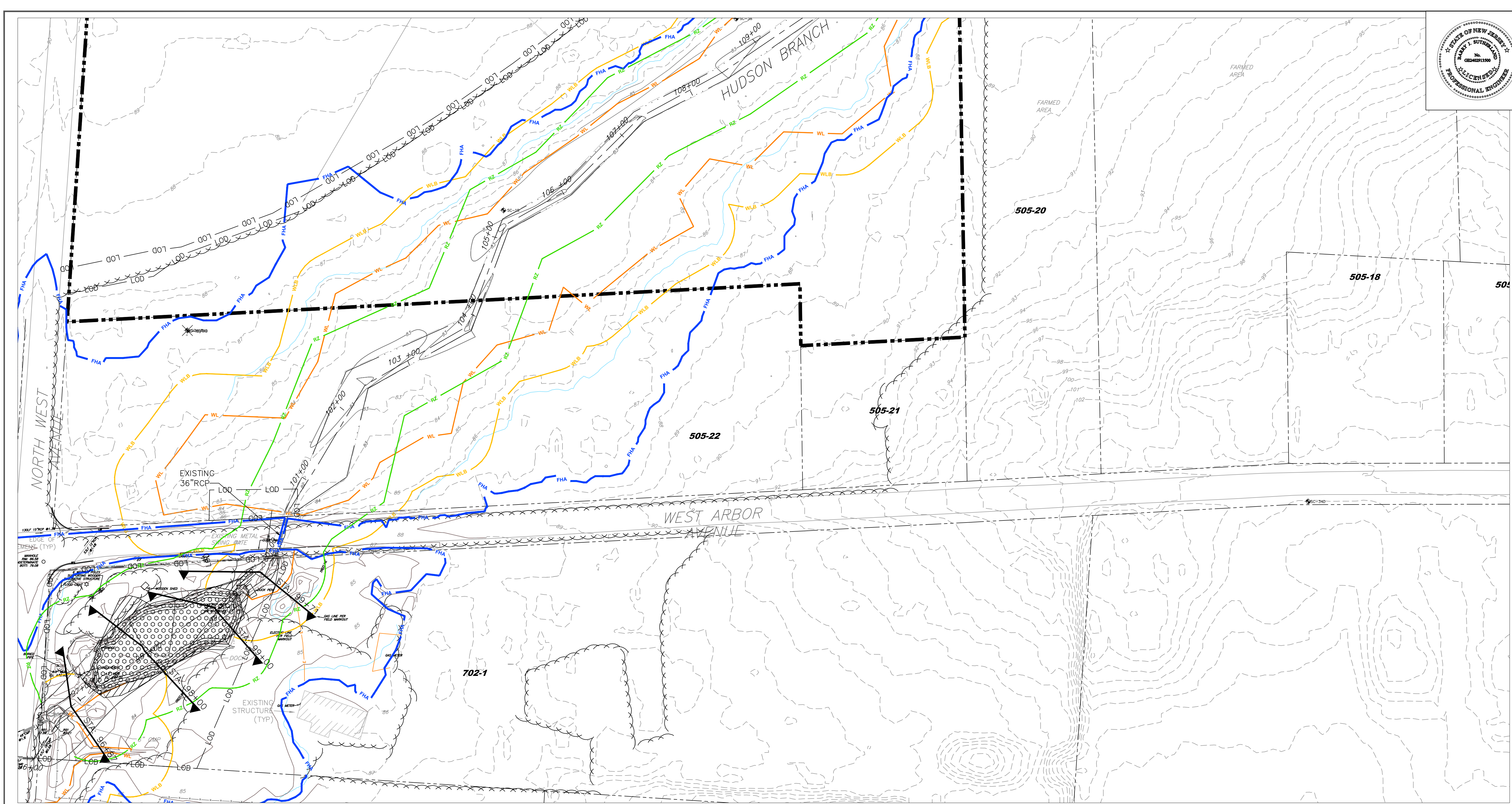
TITLE: CROSS SECTION LOCATION
PLAN & PROFILE
PAGE 2

Project No.: 112434 Scale: 1" = 60'

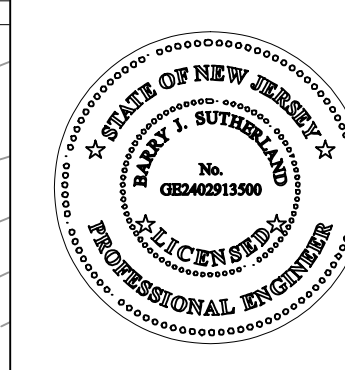
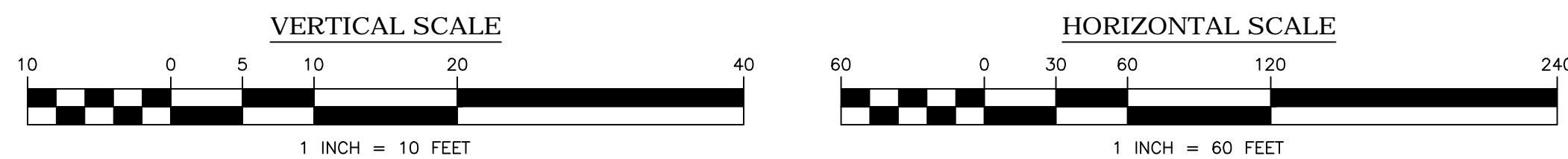
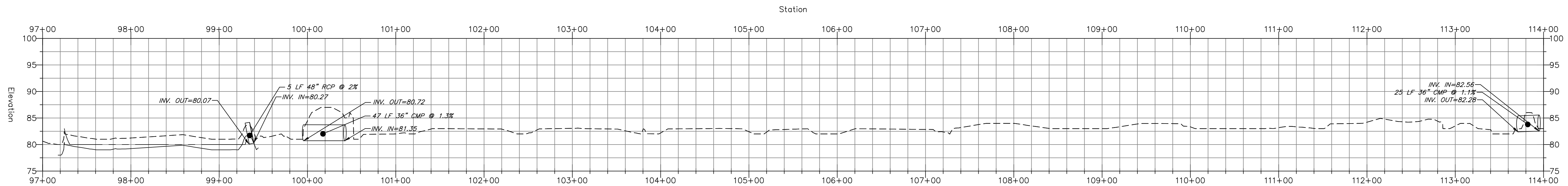
Drawn By: SJ Date: JANUARY 2017

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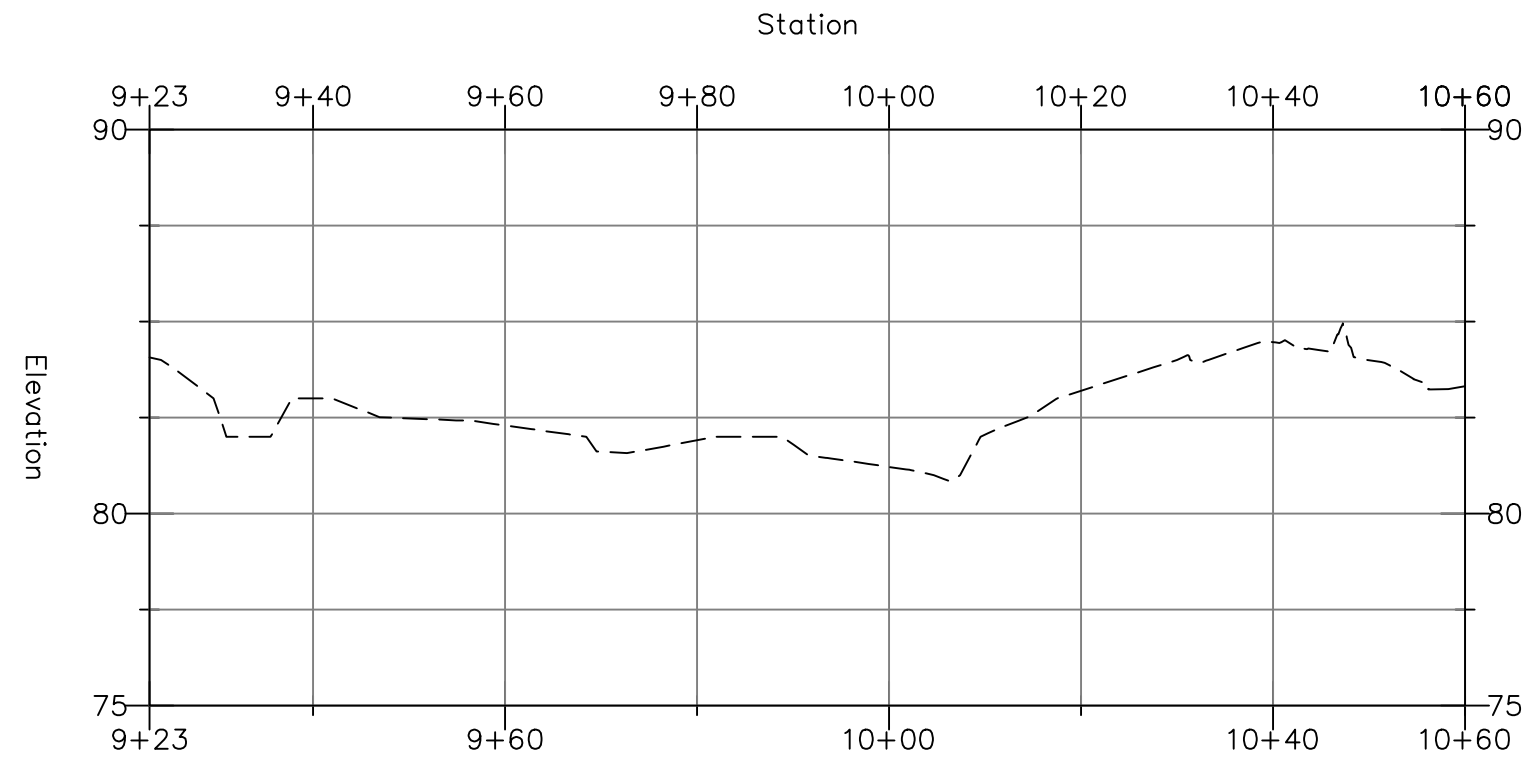
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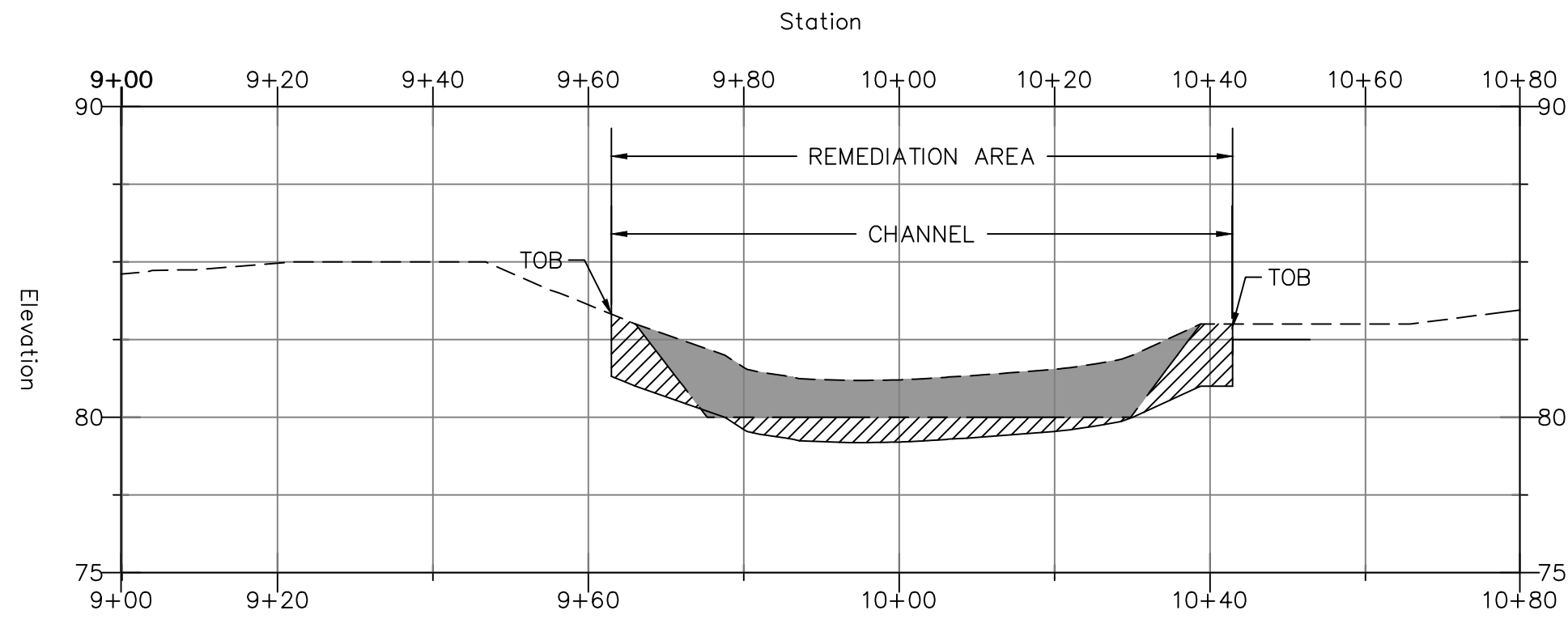
TITLE: **CROSS SECTION LOCATION
PLAN & PROFILE
PAGE 3**

Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JANUARY 2017
Checked By: BJS/PJH	C-130

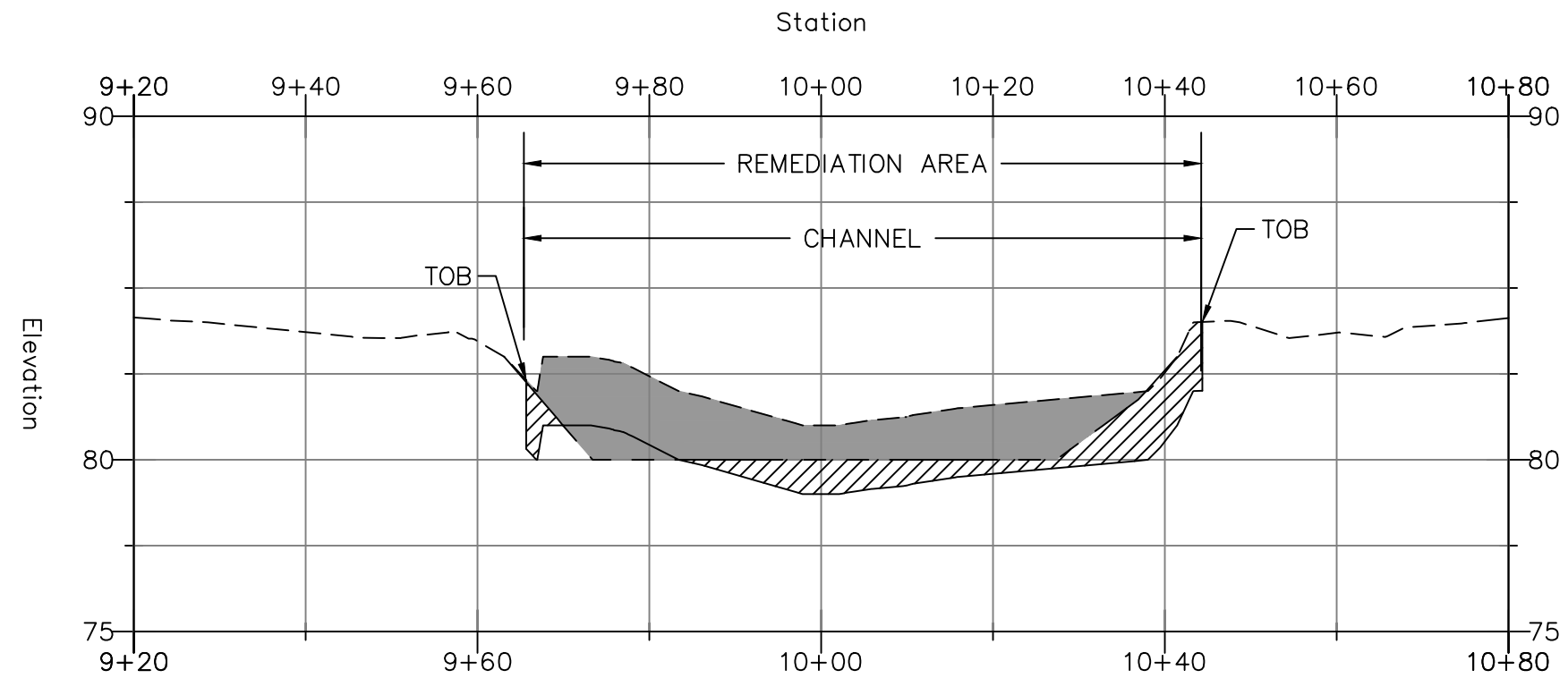
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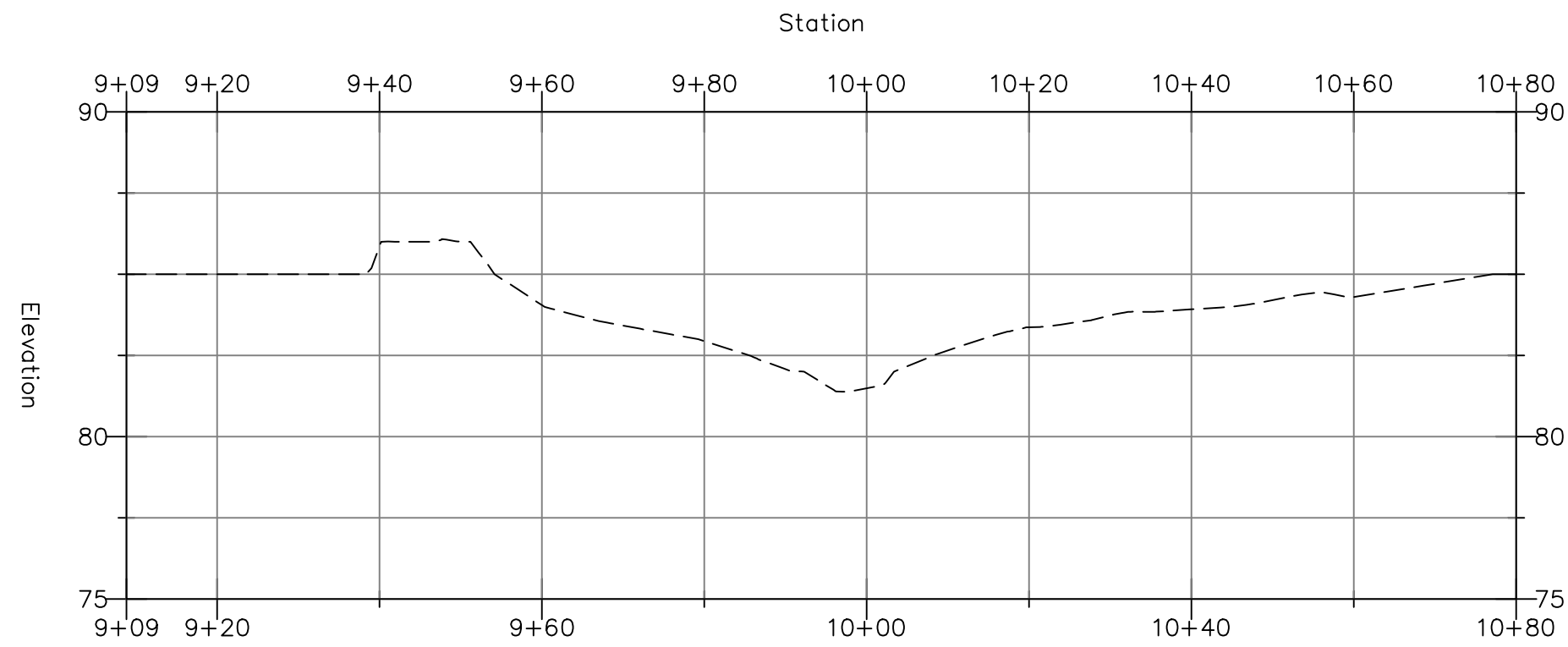
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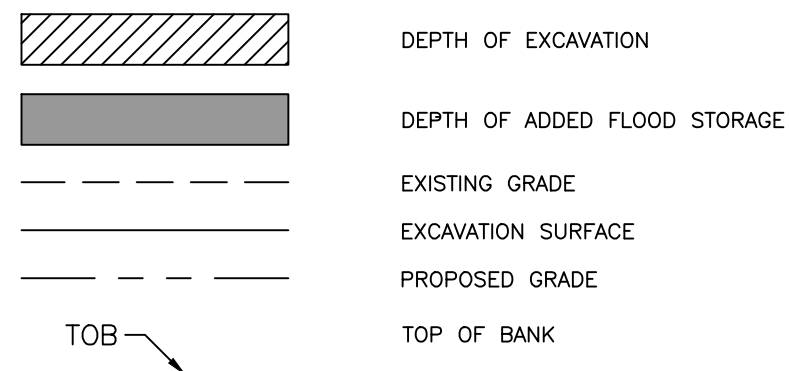
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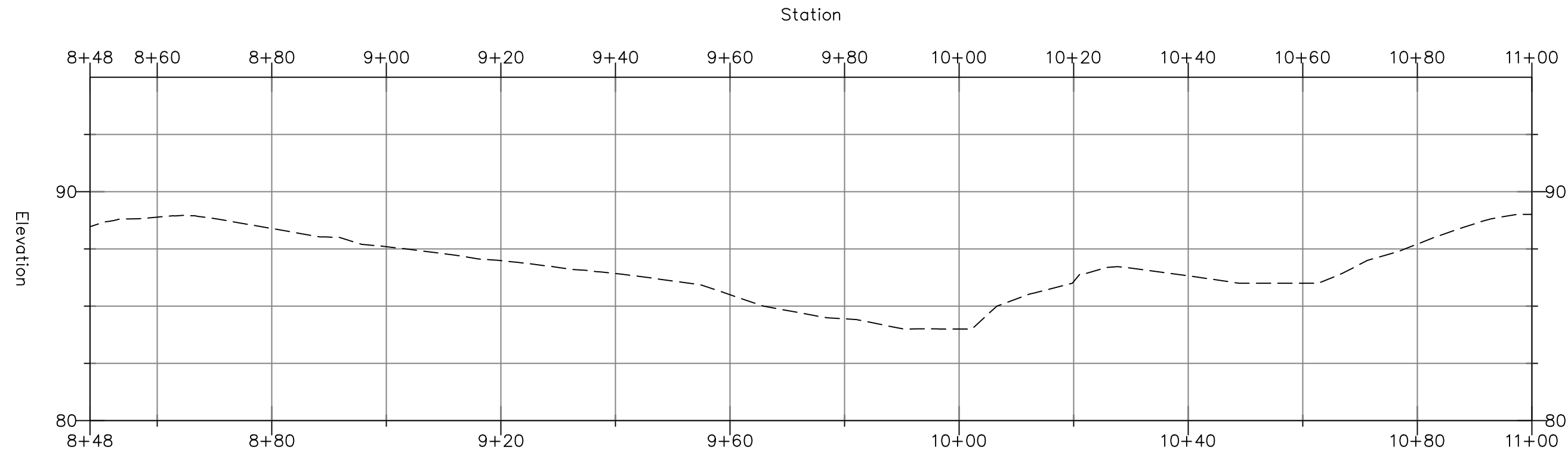
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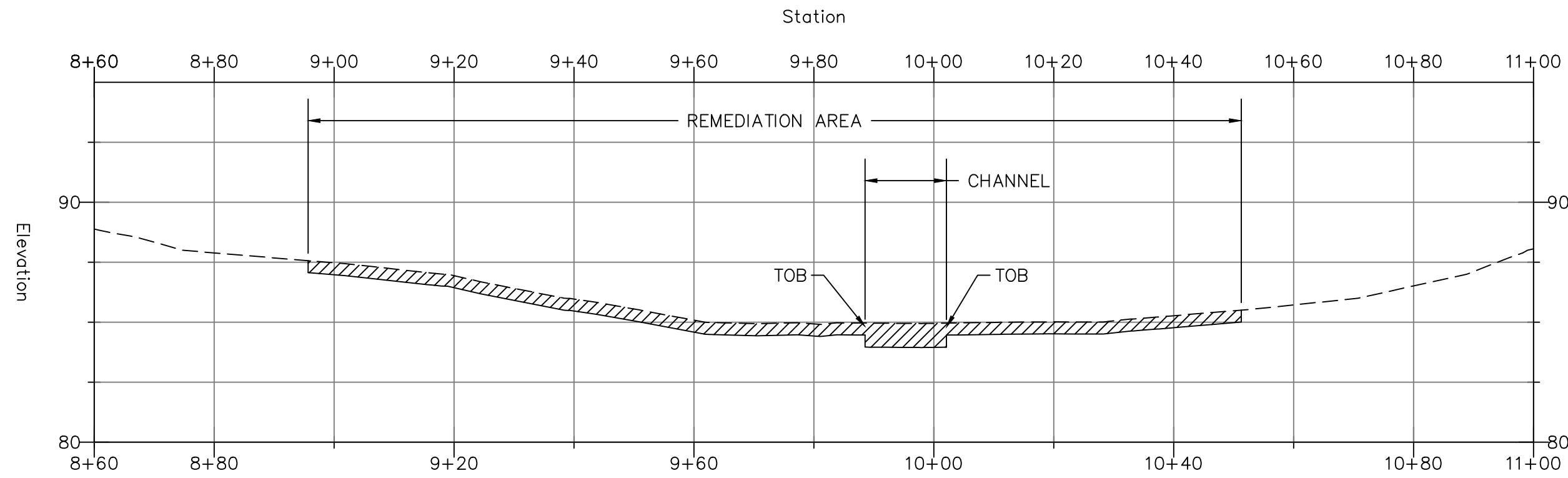
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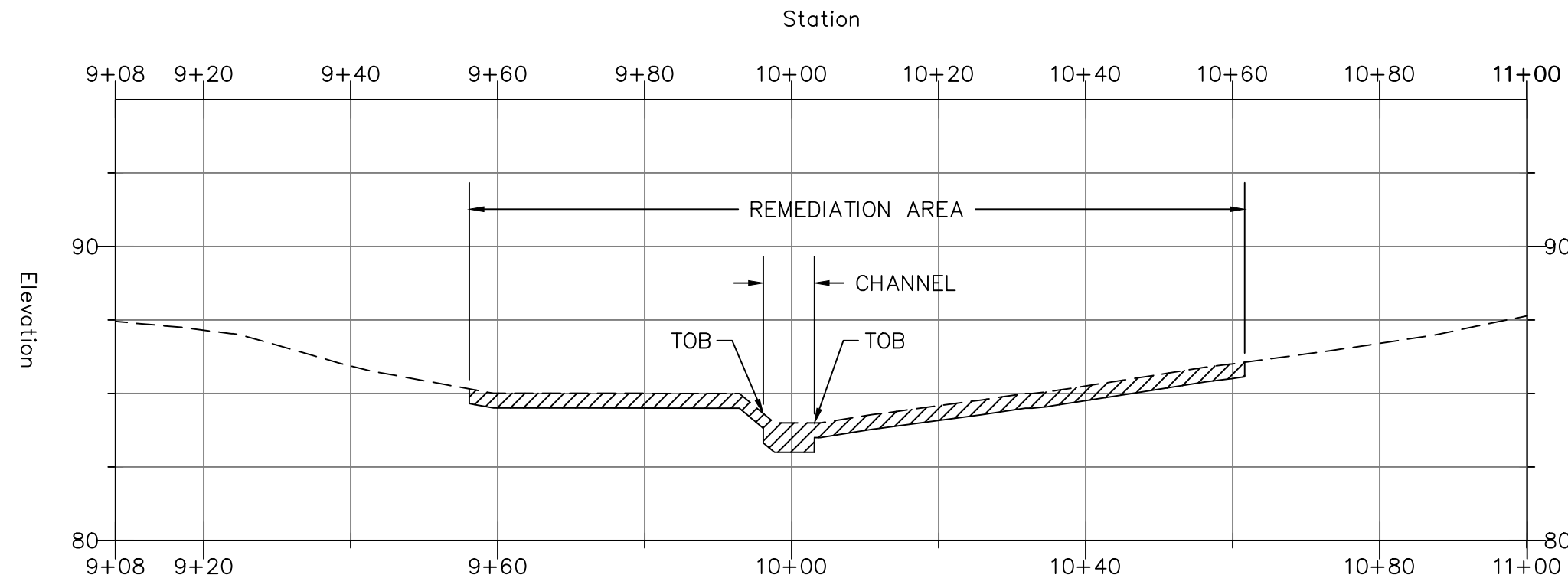
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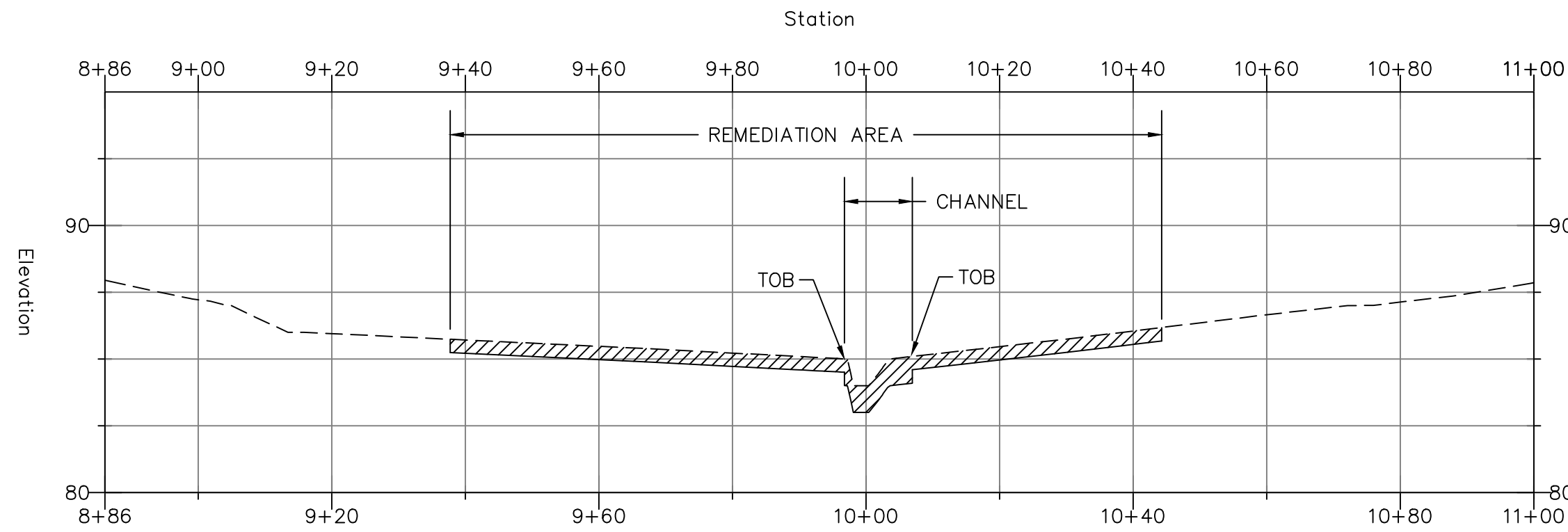
115+00 PROFILE



116+00 PROFILE



117+39 PROFILE



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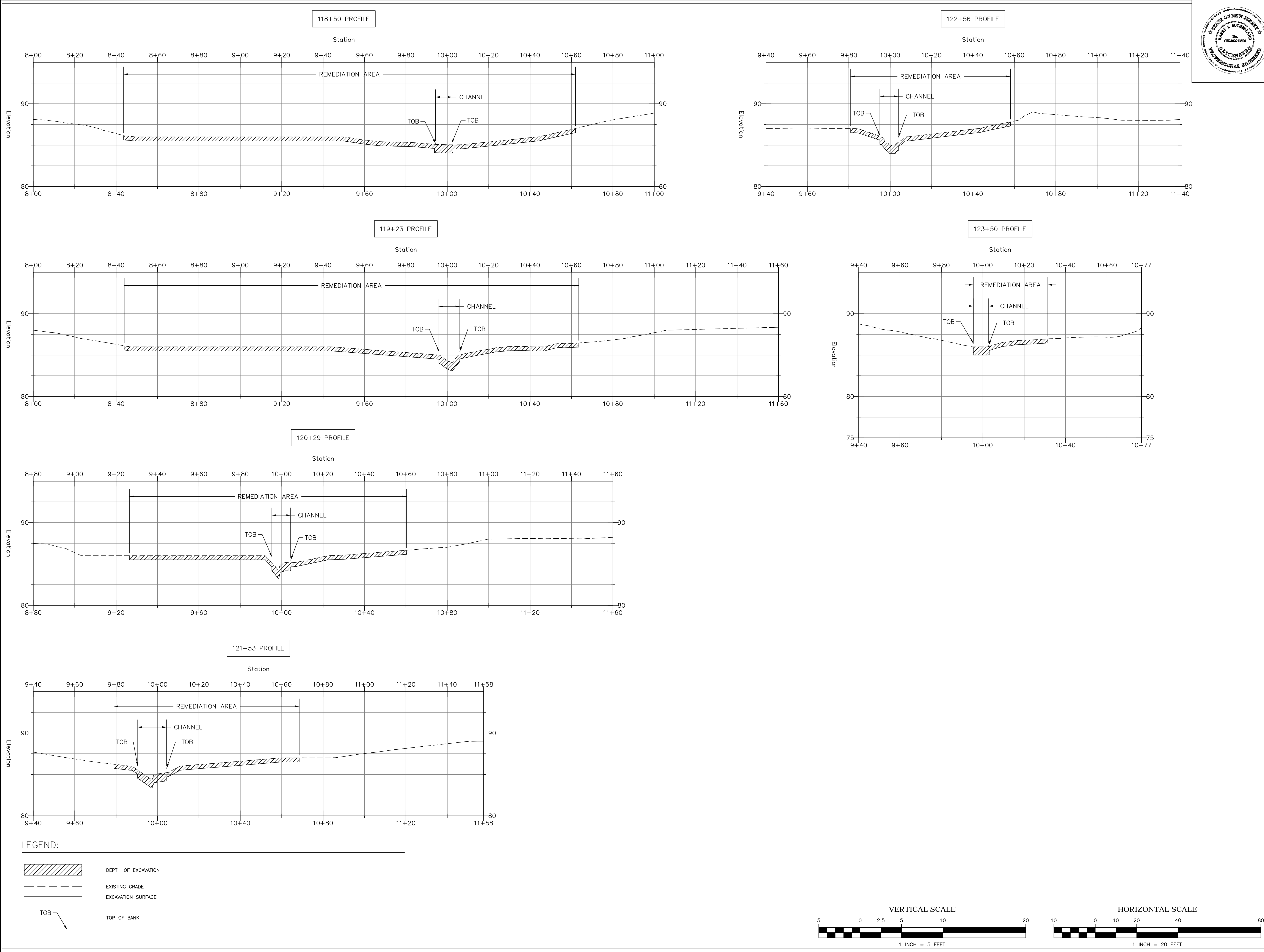
TITLE: **STREAM CROSS SECTIONS
1 OF 6**

Project No.: 112434 Scale: 1" = 60'

Drawn By: SJ Date: JANUARY 2017

Checked By: BJS/PJH

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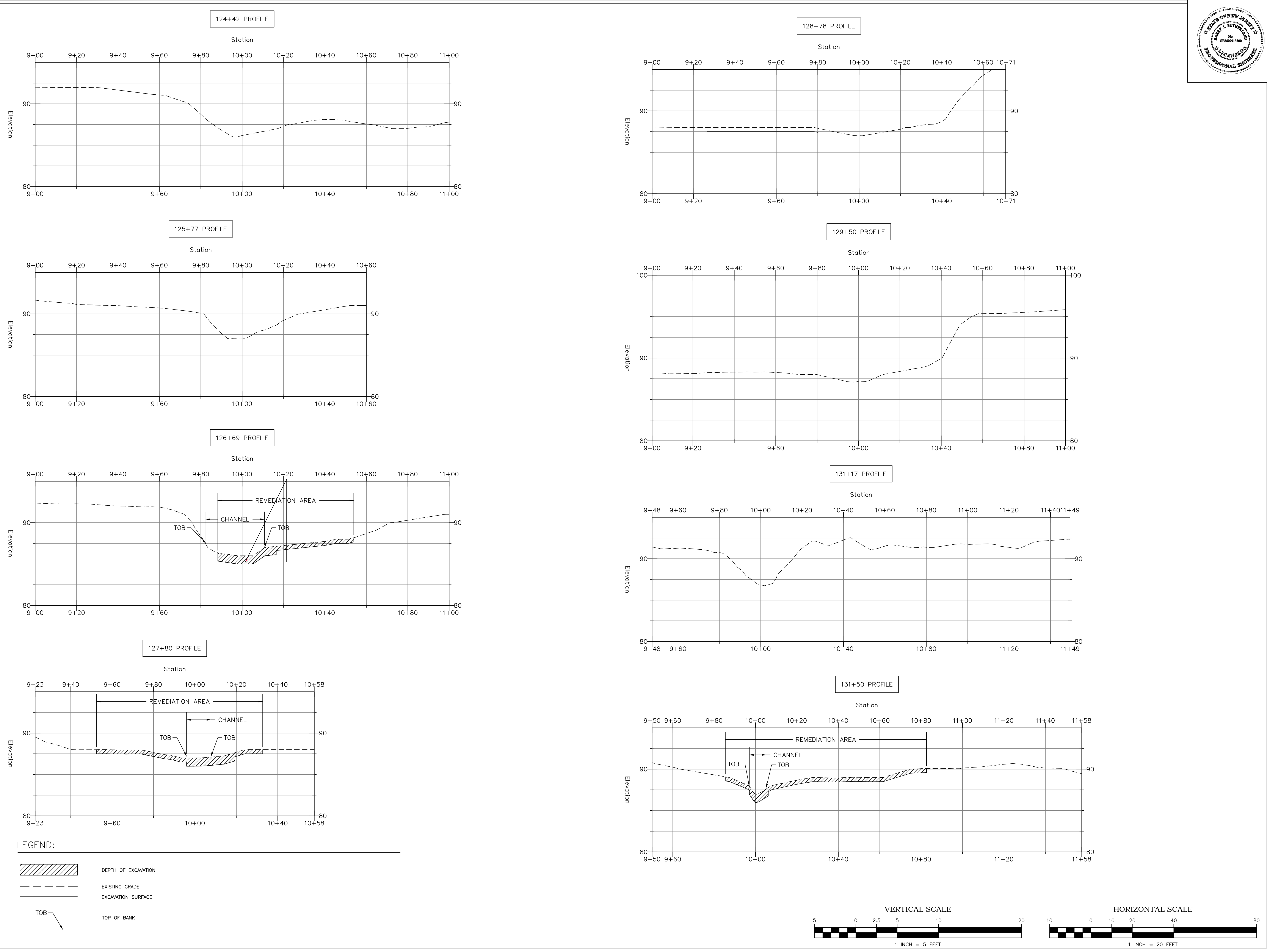
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TITLE: STREAM CROSS SECTIONS
2 OF 6

Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JANUARY 2017
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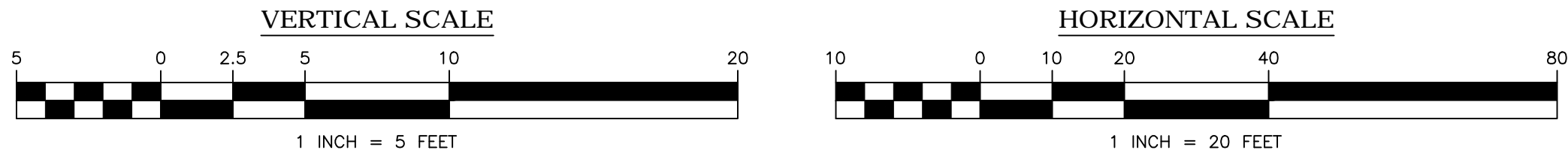
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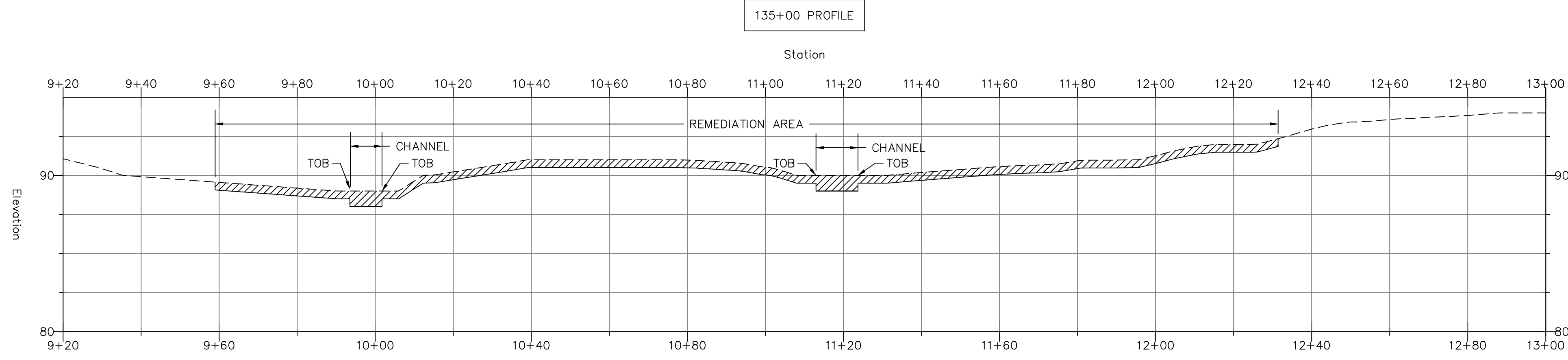
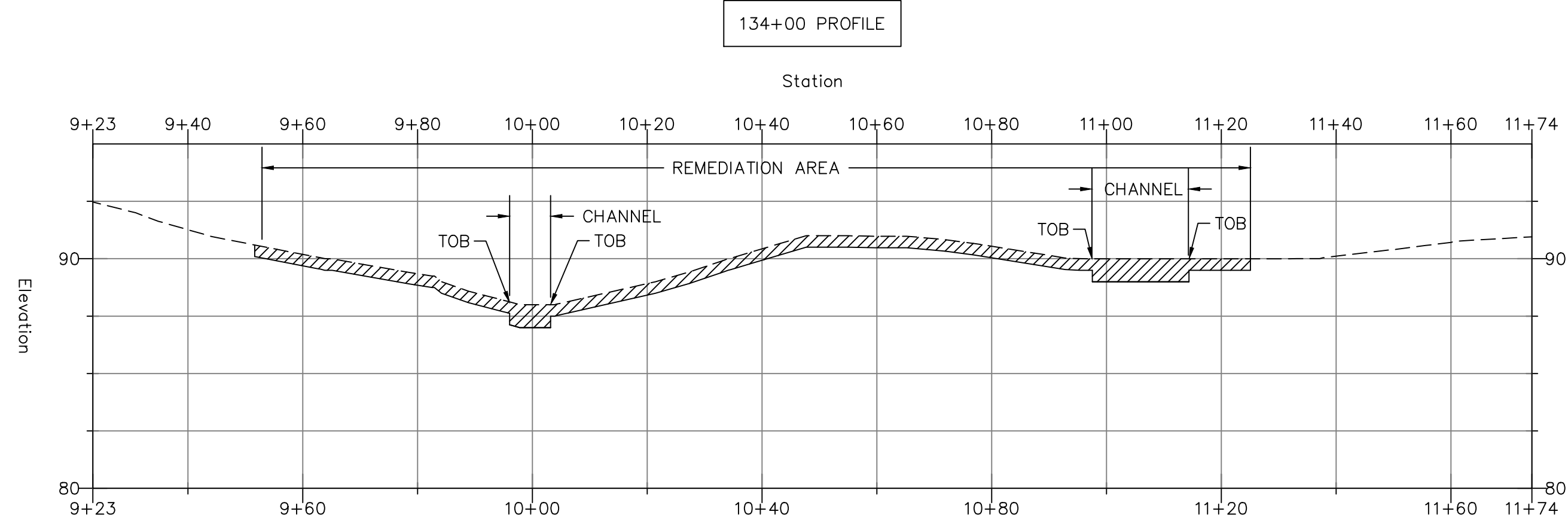
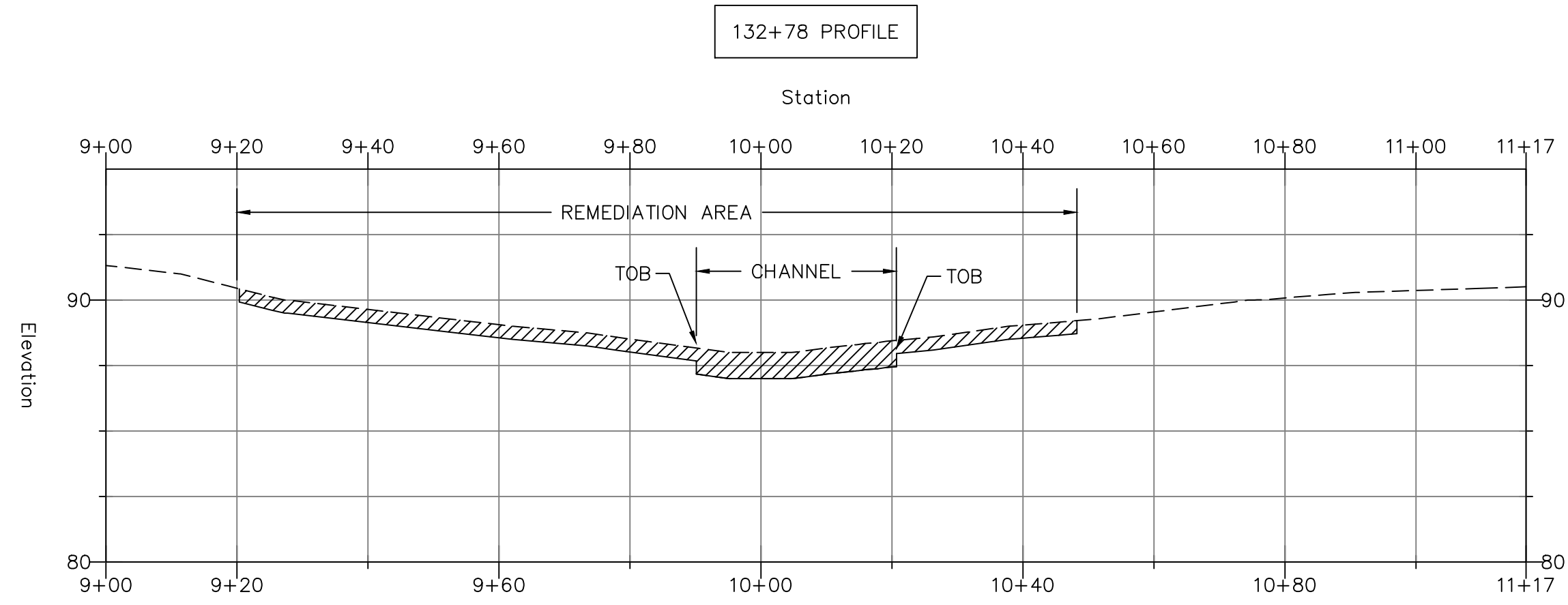
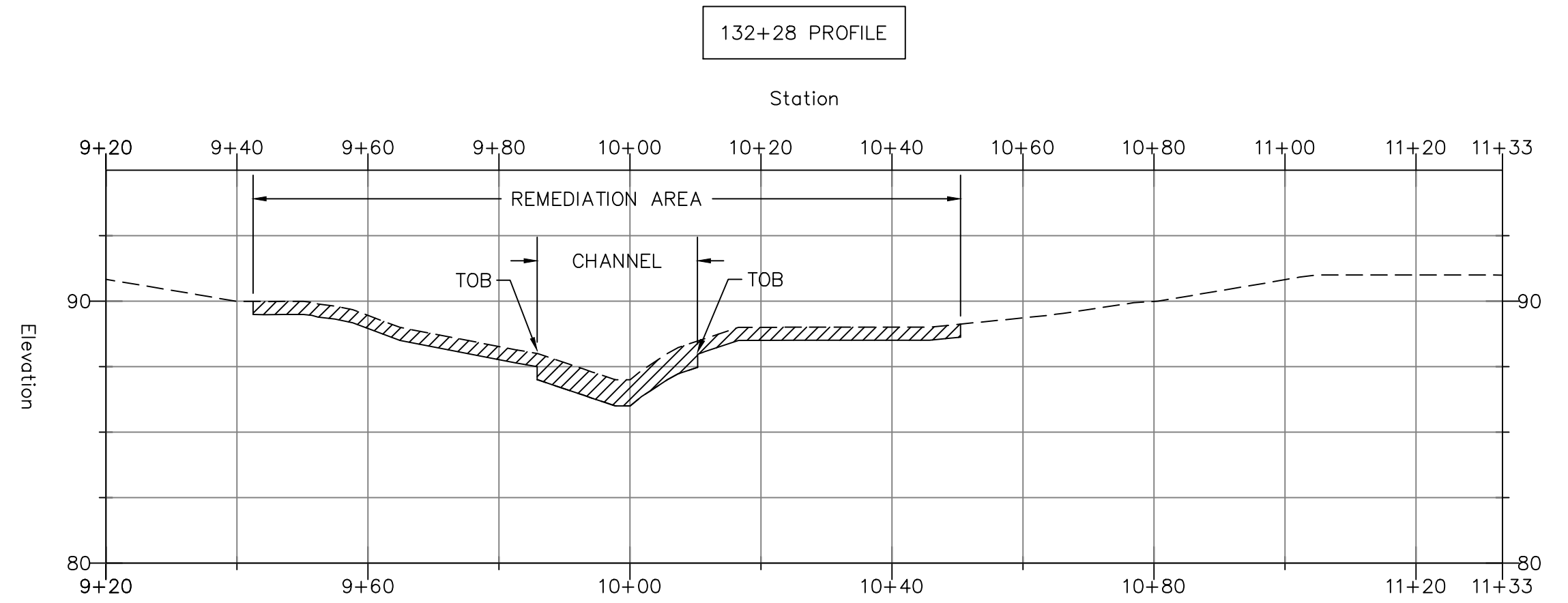
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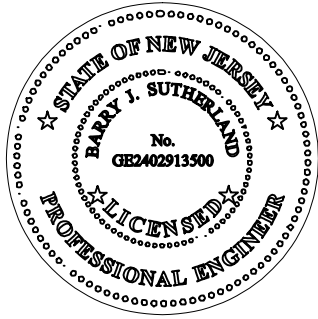
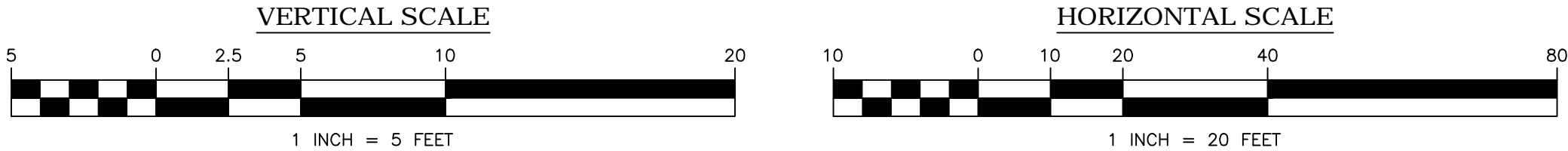
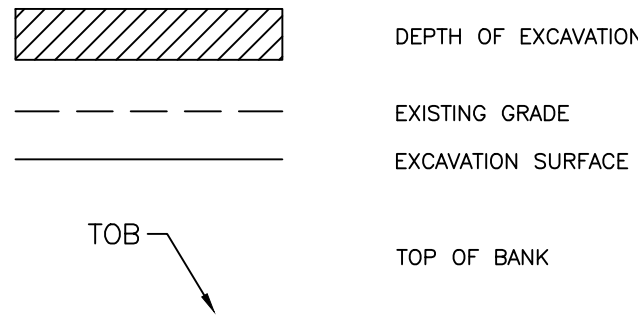
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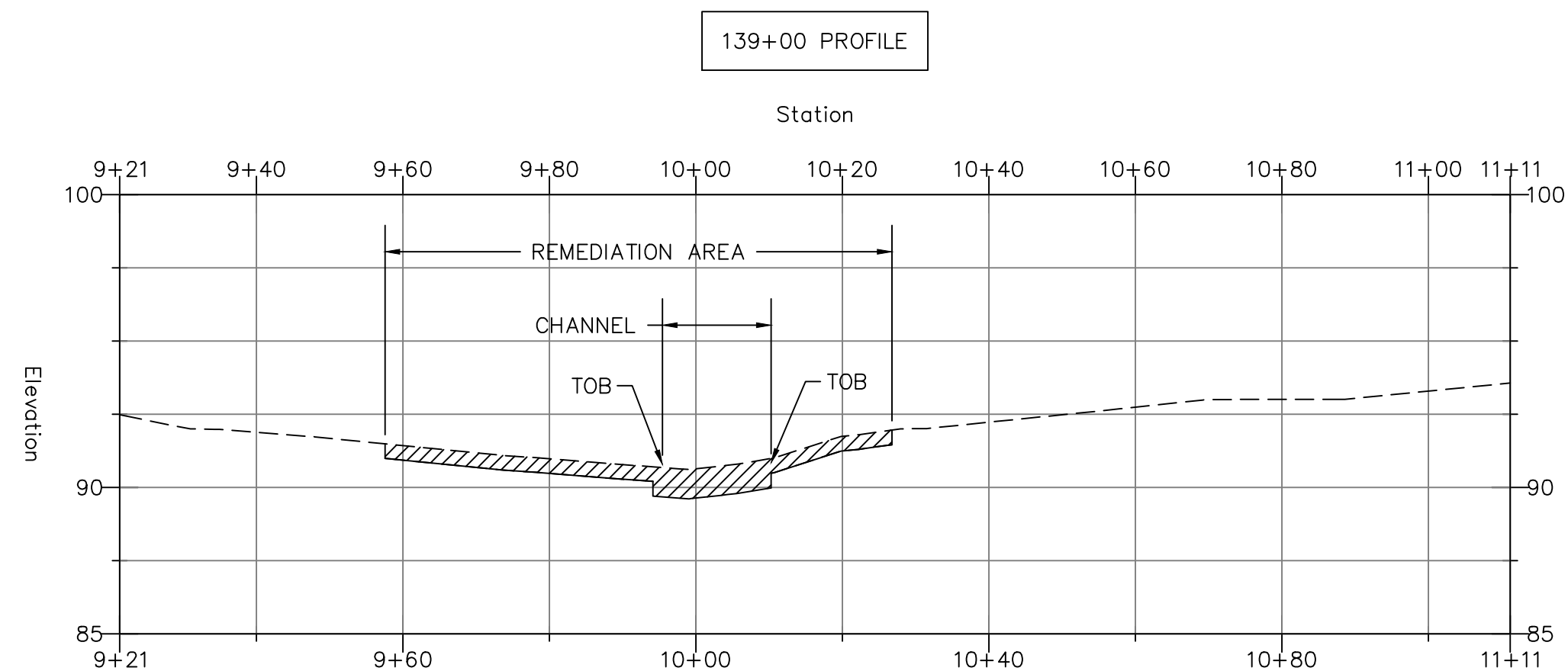


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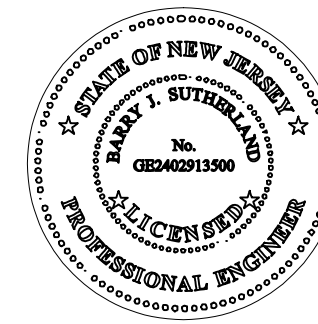
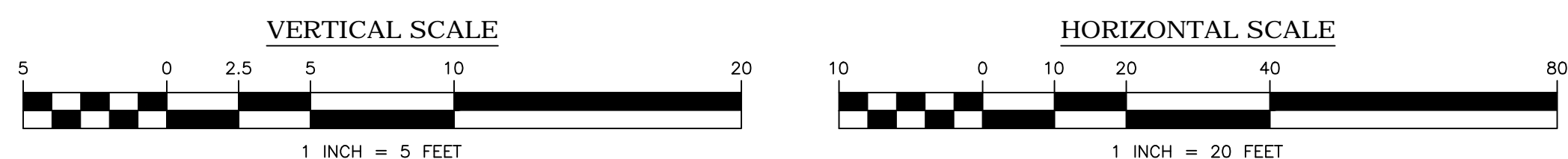
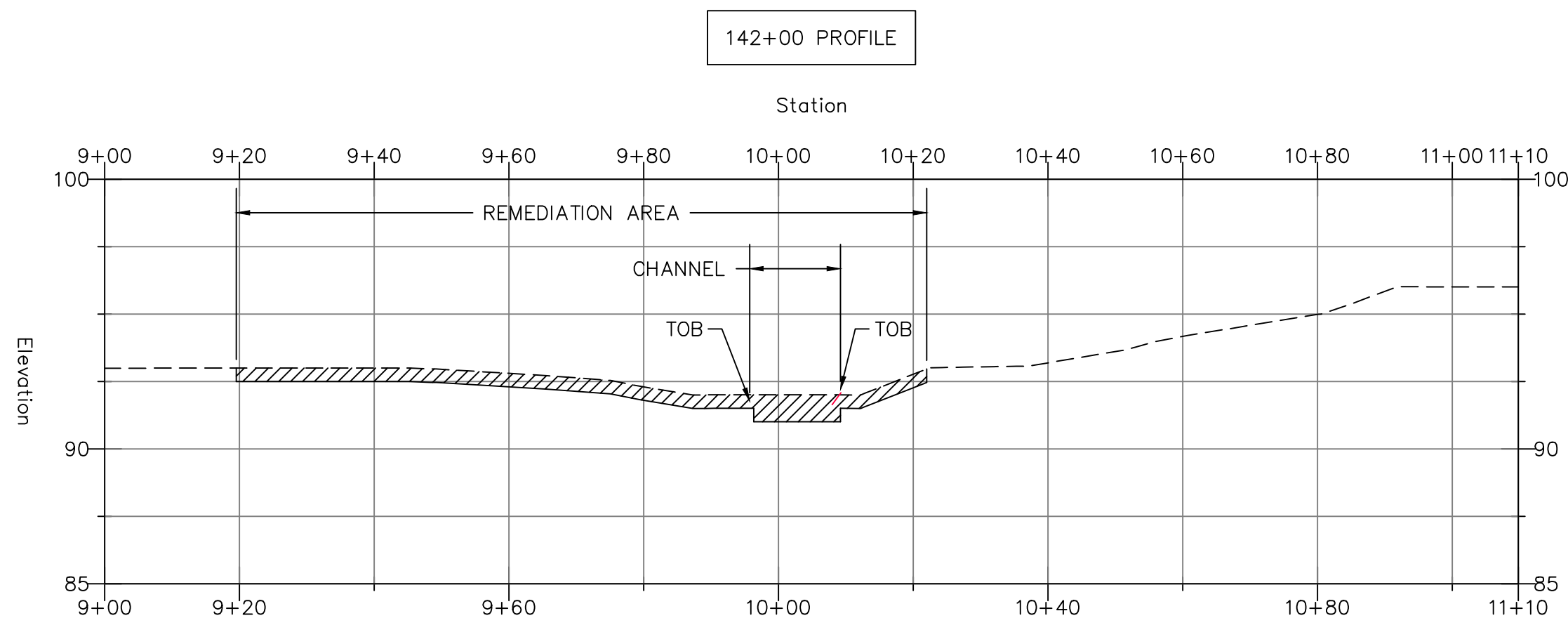
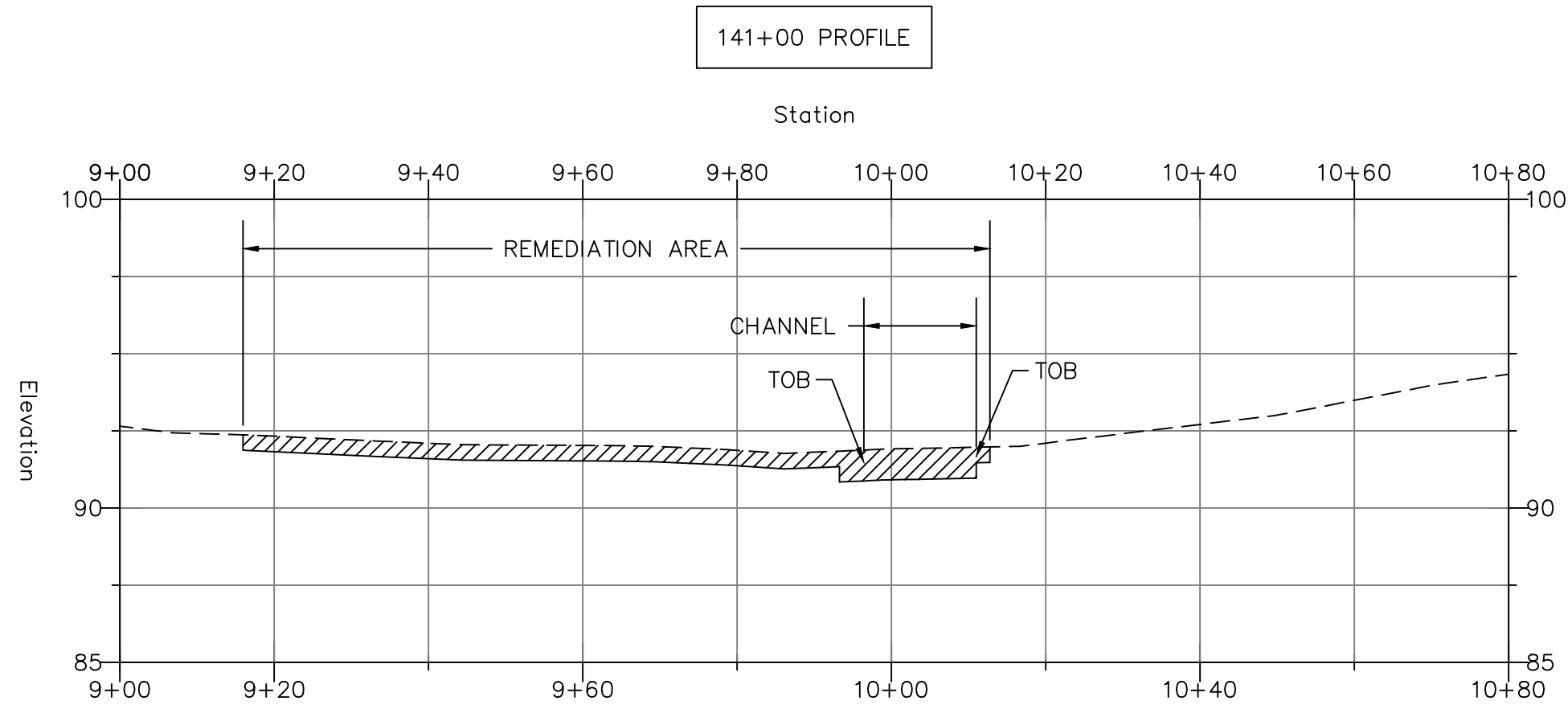
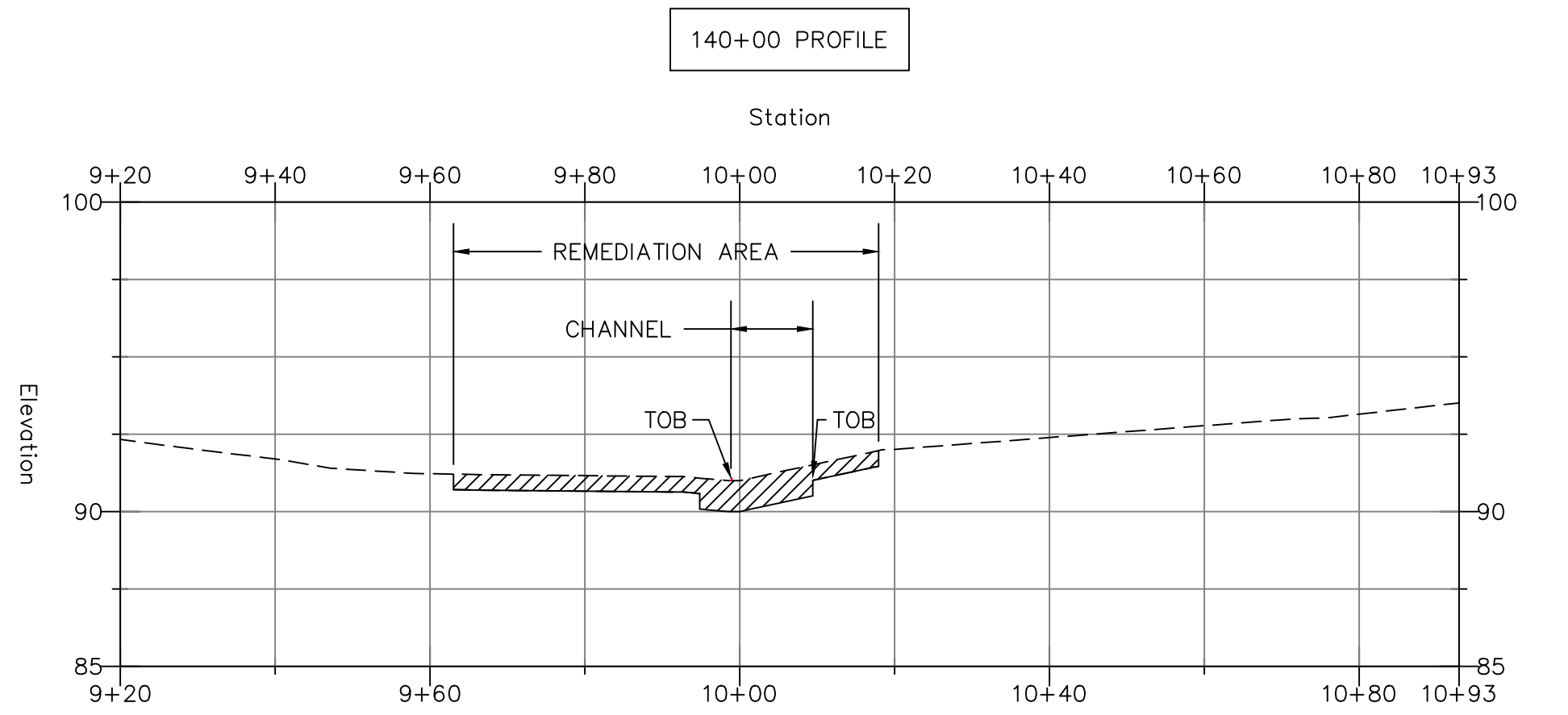
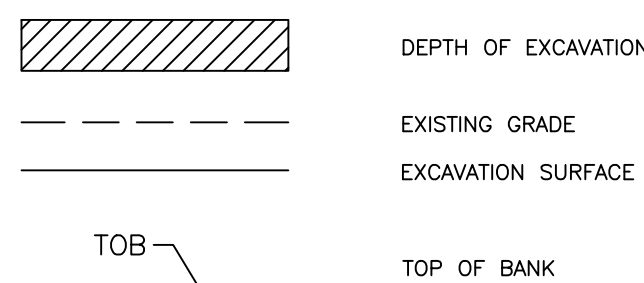
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NEW JERSEY

TITLE:
**STREAM CROSS SECTIONS
4 OF 6**

Project No.: 112434	Scale: 1" = 60'
Drawn By: SJ	Date: JANUARY 2017
Checked By: BJS/PJH	C-134



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Bary J. Lutz

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NEW JERSEY

TITLE: STREAM CROSS SECTIONS
5 OF 6

Project No.: 112434

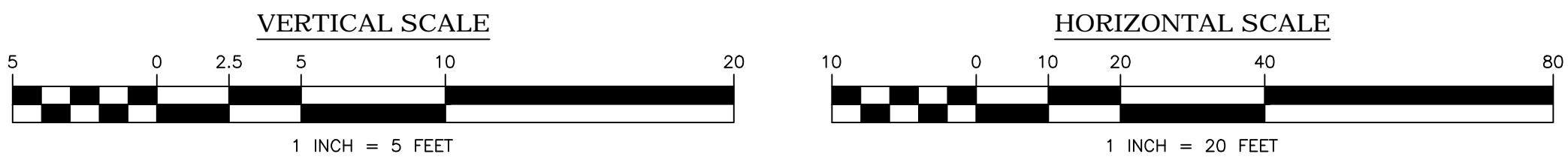
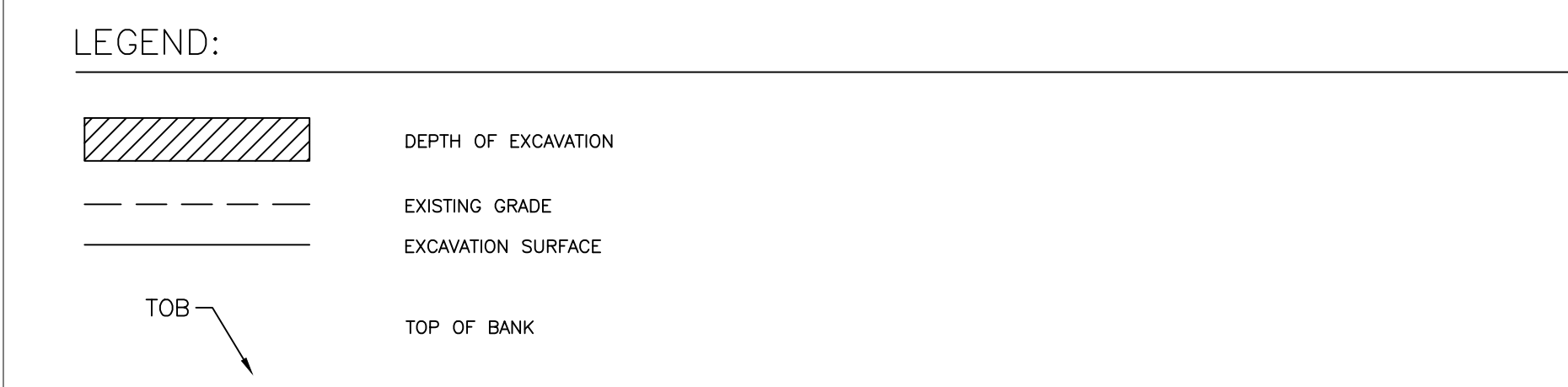
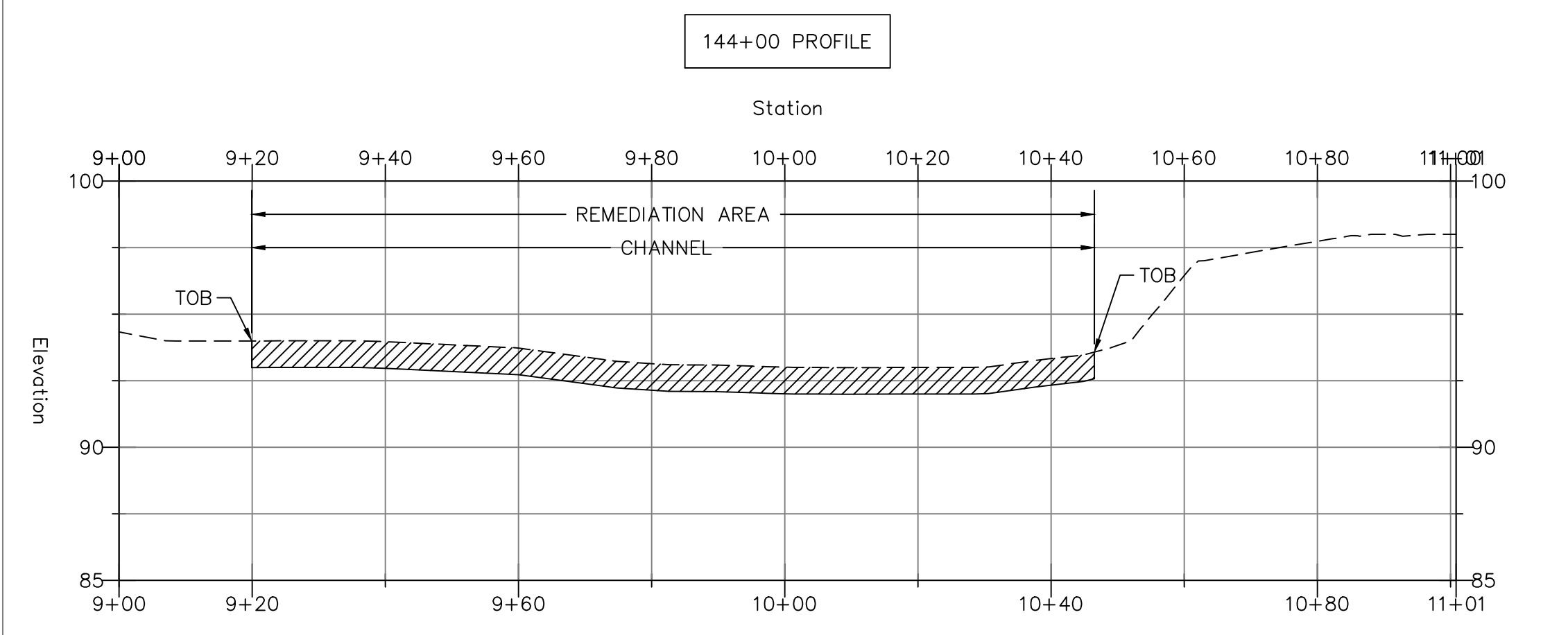
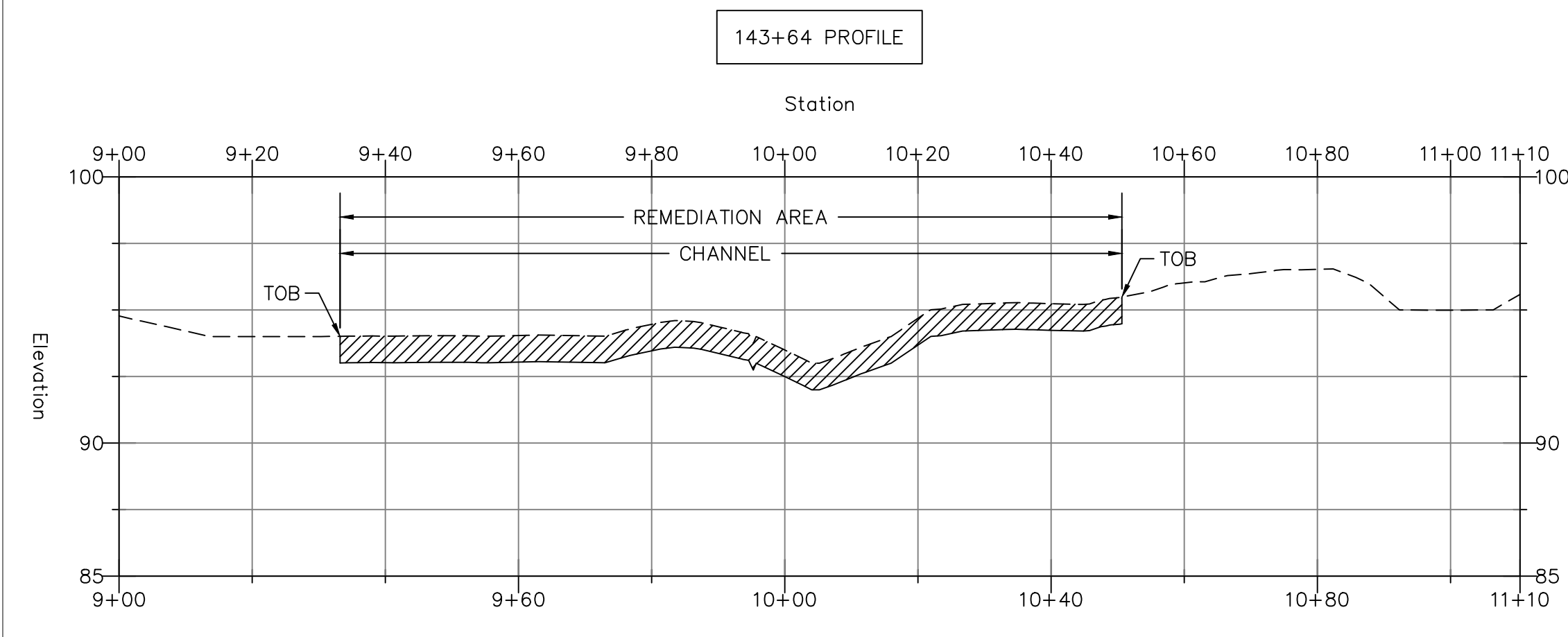
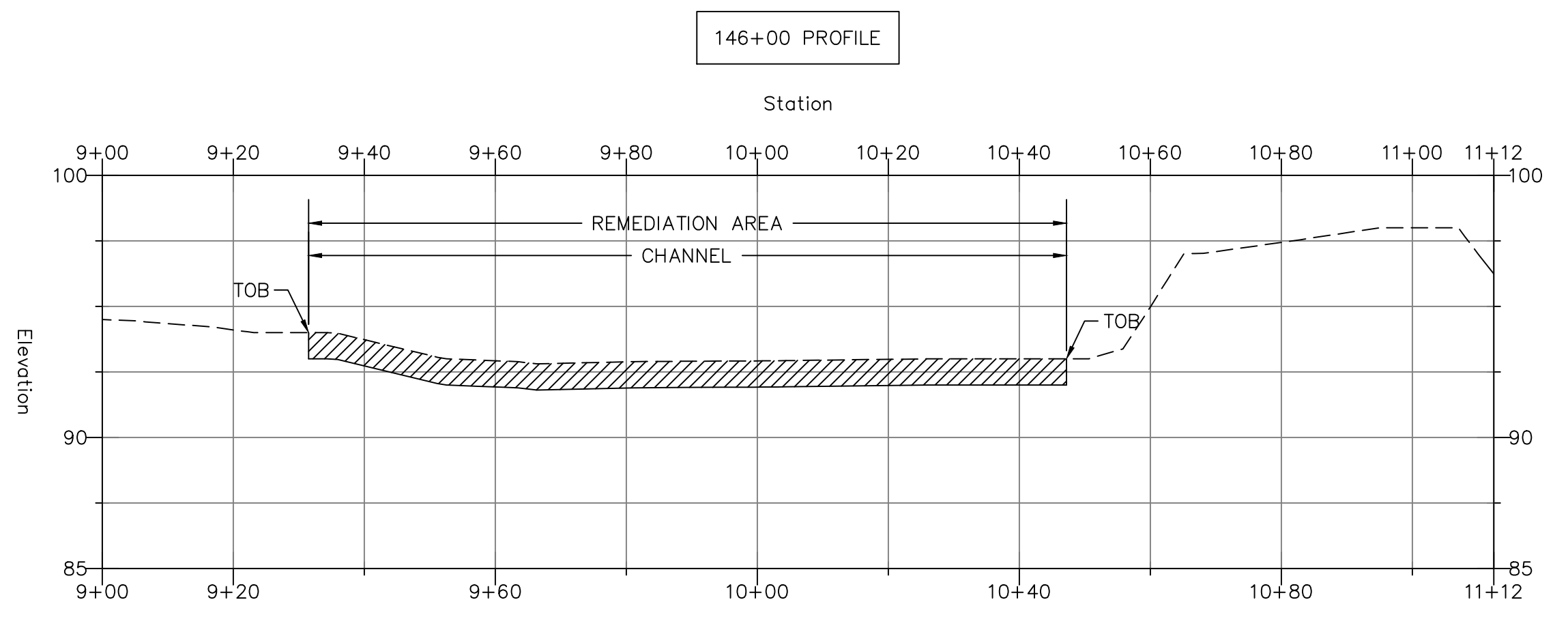
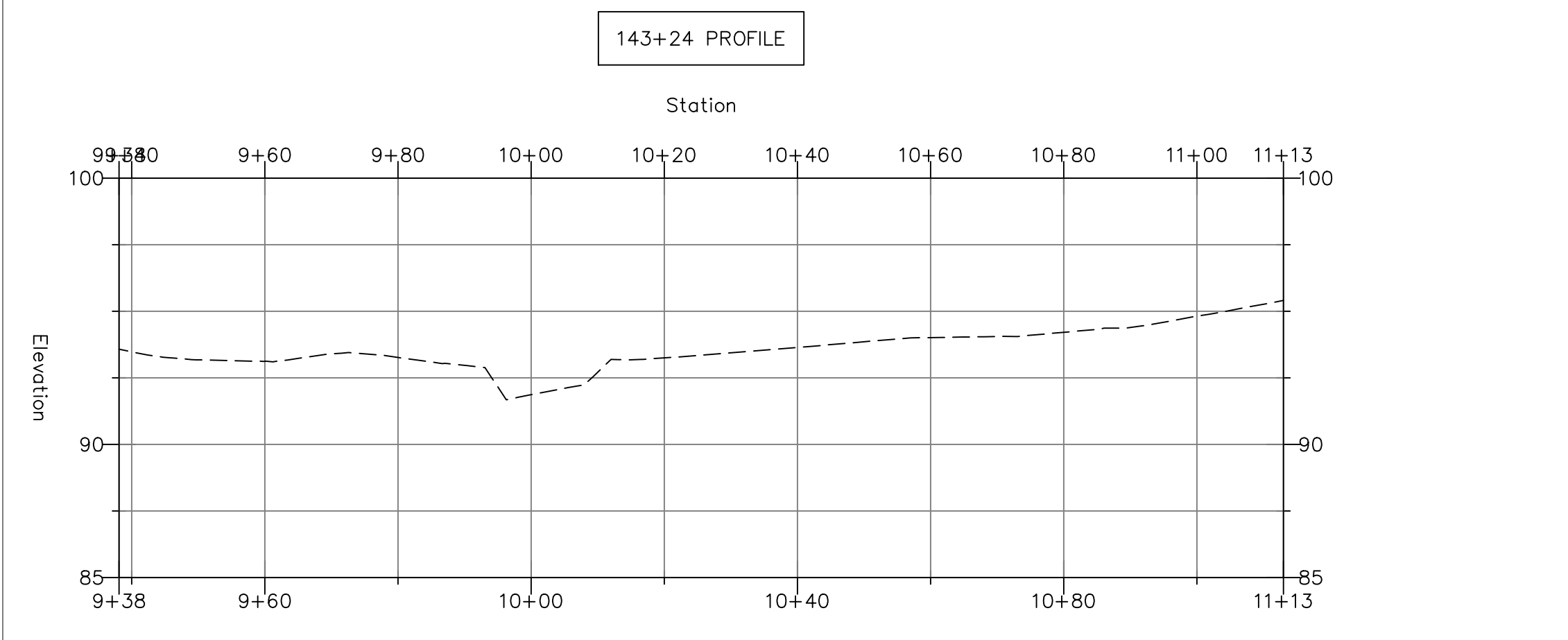
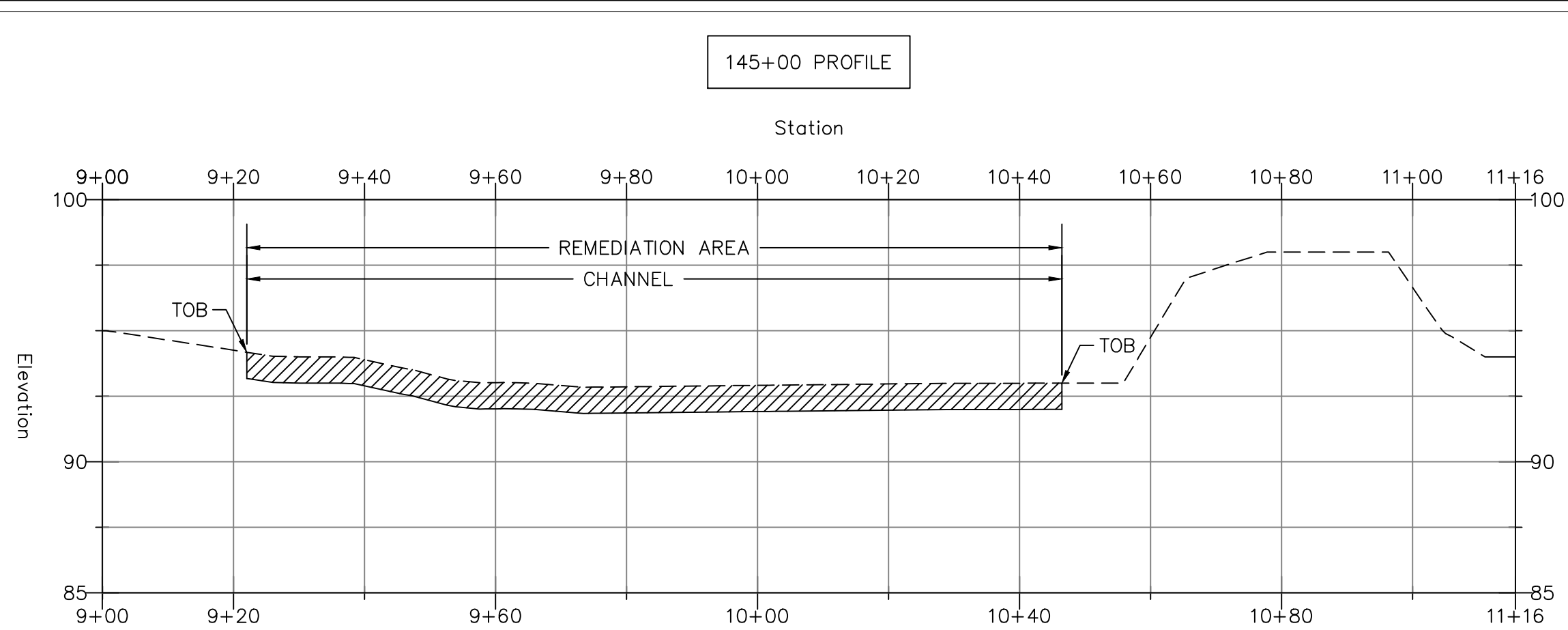
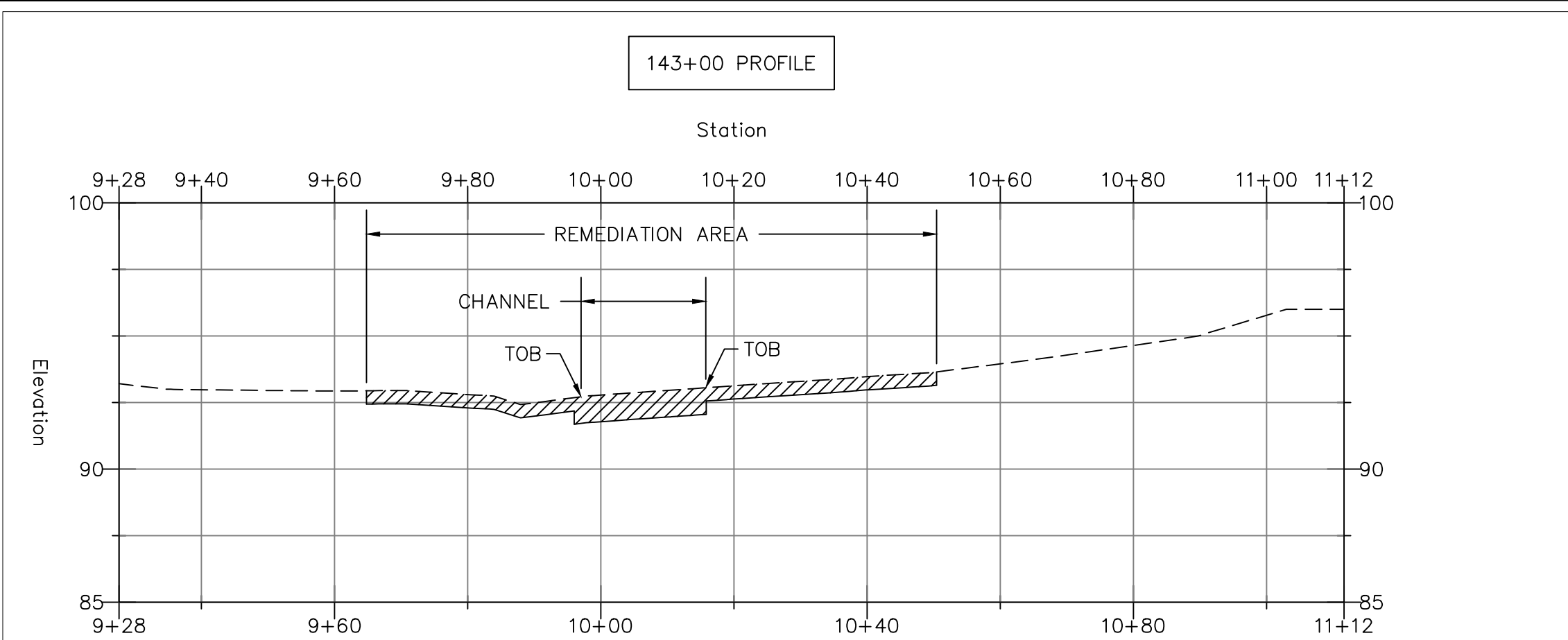
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TITLE: **STREAM CROSS SECTIONS
6 OF 6**

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